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West German Education in the Global Village

Commander
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U.S. Navy

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ABSTRACT

TITLE: West German Education in the Global Village

AUTHOR: Donna K. Lackman

INTENDED READERS: Those who have an interest Germany's educational system and how it might be useful as a model for U.S. educational reform.

THESIS: In today's global village, with its world-wide economy, a highly-skilled and well-educated workforce is critical to national competitiveness, growth and long-term survival. The "West" Germans understand this concept well. Their educational system is structured to meet this goal and provides many lessons for U.S. educational reform.

BRIEF SUMMARY: SECTION ONE introduces the above thesis and describes the framework of the sections to follow. SECTION TWO describes the general concepts, policies, and structure of the educational system. SECTION THREE examines the characteristics and curricula of the various schools in some detail. SECTION FOUR identifies some current issues that affect the functioning of the educational system; this is followed by a brief agenda for future German action. SECTION FIVE suggests lessons to be learned from the German system and recommendations for U.S. educational reform.

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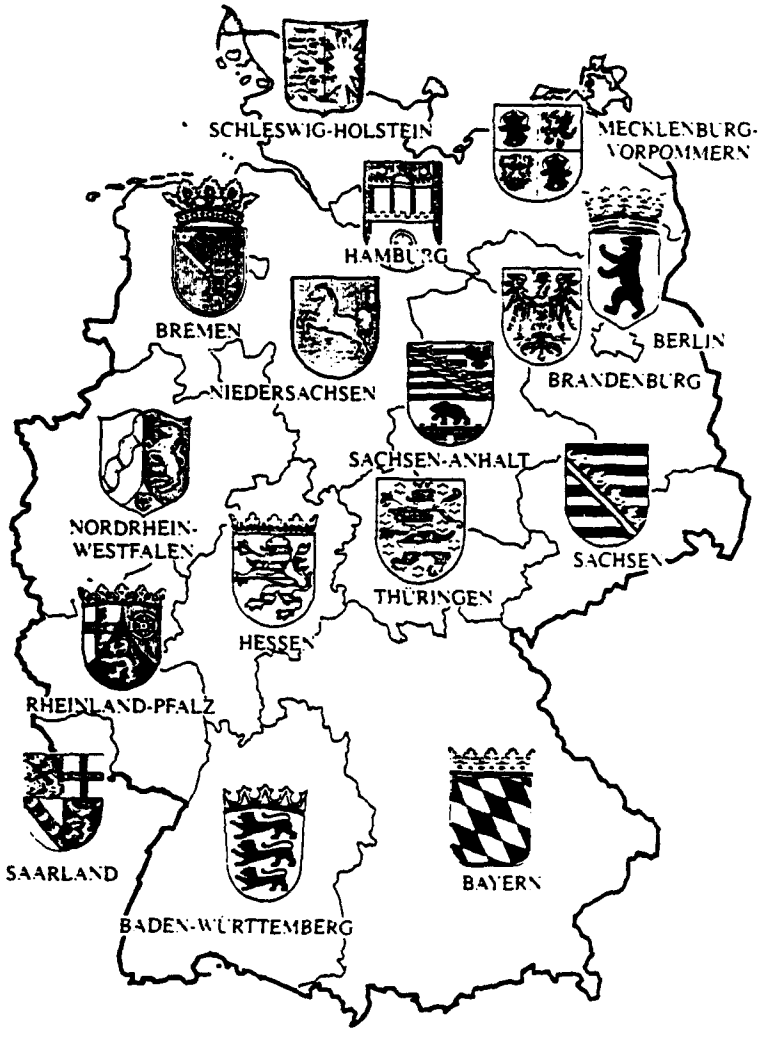

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I. INTRODUCTION

In today's global village, with its world-wide economy, a highly-skilled and well-educated workforce is critical to national competitiveness, growth and long-term survival. The Germans understand this concept well. Their educational system is structured to meet this goal and provides many lessons for U.S. educational reform.

The primary purpose of this paper is to provide a broad but thorough overview of the German system, including its strengths, weaknesses, current issues, and agenda for the future. The secondary objective is to stimulate interest in how the United States might consider some elements of the German system in addressing reform in its ailing educational system.

Toward those goals, some necessary groundwork is presented in the first section by describing the overall concepts, policies, and structure of the German system. In the following section, the characteristics and curricula of the individual schools are described. Then, some issues that currently impact the effectiveness of the system are discussed; this is followed by a brief agenda for future German action. In conclusion, some lessons to be learned from Germany and applications for U.S. educational reform are suggested.

II. GENERAL ASPECTS OF THE GERMAN EDUCATIONAL SYSTEM

A. Historical Aspects

1. ***Roman***. The roots of Germany's educational system are found in classical/pagan Greek and Roman grammar schools. These schools existed for the citizen class until the fall of the Roman empire (753 B.C. - 476 A.D.).

2. ***Middle Ages***. During the Middle Ages (700-1300) Germany consisted of small

feudal states ruled by autonomous princes subject to the Holy Roman Empire. Medieval monastery schools educated only the religious and ruling class elites.

3. ***Renaissance***. Cities grew rapidly as the Middle Ages came to a close under Hapsburg rule. During the Renaissance (1300-1500), cathedral schools gave way to neo-classical universities such as Prague and Heidelberg (1385). These institutions sought to create well-rounded scholars and statesmen by emphasizing Greek, Latin and humanistic subjects. During the same period, the first secular grammar schools (*Gymnasien*) prepared the merchant class for university entrance, and apprenticeship craft training prepared the lower classes for trades.

4. ***Reformation***. As the Modern Age began, the invention of the printing press in 1468 allowed Luther to spread his message and modern written language to the masses. During the Reformation (1500's) his Bible was used as a reading text in newly created religious elementary schools for the common man.

5. ***Enlightenment***. During the Enlightenment or Age of Reason (1600-1700's), increased emphasis on science and rationalism challenged traditional religious influence over education. The German modern language replaced Latin in many schools and universities. In 1763, Frederick the Great established 8 years of compulsory schooling for all children from age 5 to 13 and wrested control of the Prussian schools from the church. Liberal ideas of intellectual and political freedom, and assertions that all have the capacity to learn, led to greater secular control at all levels.

6. ***Victorian Age***. As the 1800's began, the Minister of Culture and educationalist Wilhelm Von Humboldt, refined the Prussian compulsory public school system. He added upper middle-level schools (*Realschulen*) with emphasis on math/science, social studies, modern language and practical arts training to the already existing main elementary schools (*Volksschulen*) and grammar schools (*Gymnasien*). This resulted in a well-organized three-part system which promoted scholarship based on ability and achievement. New universities, such as Berlin, emphasized pure scientific research, and the German education system as a whole became the pre-eminent model and center of liberal education

for Europe and America. Nationalism increased as a reaction to Napoleon's conquest, and schools began to emphasize citizenship and loyalty to the state. The grammar school audience widened, although a wide gulf remained between the elite secondary schools and the common class elementary schools. New teaching techniques improved the learning process, e.g. the Swiss educator Johann Heinrich Pestalozzi's "discovery" method, but workers and peasants still faced an educational dead-end.

7. ***World War I/World War II***. The Weimar Republic (1918-1933) moved toward greater equality after World War I, when the Education Law of 1920 required a four year common education for all. Unfortunately, the rise of the National Socialists interrupted this progress. The Nazi government (1933-1945) centralized schools under federal vice state control for the first and only time in German history. Restrictions on intellectual freedom and use of the schools to legitimize policies destroyed a laudable system.

8. ***Cold War***. After World War II, the allies tried to impose their ideas for reform on the new German Republic -- but Germany resisted. During the 1950's, it reestablished the old three-part system, i.e. main (*Hauptschule*), middle (*Realschule*), and grammar (*Gymnasium*), with some modifications to accommodate its new situation and 12 million refugees. The states dramatically increased the number of *Realschulen*, as well as alternative ways of gaining access to university. As the systems became more differentiated, the states began to work together toward standardization (1948). During this period, Soviet occupiers isolated the eastern *Laender*, which developed along different lines for the remainder of the Cold War.

9. ***Liberal reform***. In the 1960's and 70's West Germans were frightened by talk of an impending crisis, i.e. the German "educational catastrophe"[1]. This led to educational reforms and comprehensive national educational planning to support economic prosperity. Goals were established as shown in Appendix 1. Steps were taken to increase the number of university and pre-school places, improve the transfer process between schools, initiate comprehensive schools, and introduce diagnostic years between primary and secondary schools. Automatic data processing stimulated the collection and analysis of statistical data and educational research grew rapidly. A second large migration from East

Germany and Europe began in the mid-70's and by the 1980's West Germany blamed educational reforms for many of its increasing social problems.

10. ***Present reality***. After the "Wall" fell (*Wende*) in 1989, efforts began to reestablish West German education in the eastern *Laender*. Numerous social, political and economic problems have been intensified by the massive investments required to normalize the backward and decayed east. After experiencing decades of prosperity, Germany in the 1990's is experiencing a recession where lack of graduate employment opportunity is beginning to place great stress on the system.

B. Legal Foundations

Germany's long history of strong, independent states is reflected in its Constitutional educational law. It deliberately chose to leave control of schools in the hands of the 16 states (*Laender*). This avoids a centralized educational authority such as that used by the Nazi government to support its policies. The Republic's Constitution or Basic Law of 1949 (Grundgesetz) and its 1969 Amendments formalize this principle of state control.

1. ***Federal (Bund)***. Various Basic Law articles serve to balance state sovereignty with federal coordination, separate church and state, and preserve individual (parental, teacher, pupil, and trainee) rights. In 1969, a series of Amendments gave the federal government limited responsibilities in higher education and educational planning at all levels, and full responsibility for non-school vocational training. This was accomplished only after prolonged debate and formation of a Christian Democratic Union/Christian Social Union (CDU/CSU) and Social Democratic Party (SPD) coalition in support of federal aid and standardized university structure throughout the republic. The articles and amendments are described in Appendix 2.

2. ***States (Laender)***. In addition to federal law, each state has its own constitution and implementing legislation -- in fact, this constitutes the majority of written educational law. The states often enter into formal educational agreements with the federal government, implementing federal

guidelines as state legislation. For example, the 1964 *Hamburg Agreement* between the Laender of the Federal Republic of Germany on the Standardization of the Educational System ensured reciprocality of state certifications, established a uniform school structure, standardized the length of compulsory education and the school year, and ensured consistent terminology. A similar agreement in 1973 approved a federal distribution system for assignment of scarce university places to pupils. States also vote on long-range national educational plans that are binding only on approving states.

Court challenges of legislation have led to landmark judgements on subjects as diverse as: 1) regulating university admission, 2) sex education in schools, 3) mixed-ability level schools, and 4) transition from primary to secondary levels. These decisions have resulted in much debate over whether educational change should be enacted administratively or through law and regulation.

C. Educational Aims

The Basic Law holds the state responsible for providing education, while requiring parents to ensure their children attend and benefit from school. Since the state is responsible to parental wishes, Germany's cultural ideals of work and duty play a large role in determining educational aims.

There is widespread agreement on two main goals for educating children. Necessary knowledge, skills, and values must be provided to ensure each child can: 1) make a productive living at some vocation and 2) contribute as a responsible citizen. Germans have long expected their government to coordinate the education and employment systems -- thus ensuring a smooth transition from school to work, a high achievement level, and a competitive economy.

In 1964, the Standing Conference of Ministers (*Kultusministerkonferenz - KMK*) agreed on the educational reform goals listed in Appendix 1. It is not, however, all "black and white". There is significant disagreement over the following two questions regarding educational aims:

1. Should education stress equal opportunity through similar experiences or through differentiated opportunities based on ability? [This argument is seen most clearly in the differences between the CSU/CDU and SPD party positions described in Appendix 3.]

2. Should education emphasize character development in support of social, political, and cultural responsibilities or free development of the individual personality and ability to choose? [This has been discussed since 1978, with little progress toward reincorporating character or value training.]

A 1970's reform effort replaced religious and character education with secularized instruction and reoriented education toward the traditional academic disciplines -- however, emphasis on basic citizenship values remained intact. In 1988, a writer by the name of Val Rust, generalized state goals for the educated child as follows:

- [to learn] in the spirit of Christian principles,
- to be conscientious, to do their duty and to be knowledgeable,
- to be able to adjust to an ever changing society,
- to participate in and enjoy learning throughout life. [2]

In short, the aim of education remains "to develop an educated, vocationally efficient citizen in a democratic state."[3]

D. Administrative Organization

Federal, state, and local governments all play a role in administering the educational system. Appendix 4 provides a visual representation of the organizations described below.

1. *Federal*. The Federal Ministry of Education and Science (*Bundesministerium fuer Bildung und Wissenschaft* - BMBW) was created in Bonn in 1969. It was formed to oversee all federal responsibilities specified in the Basic Law Articles 74, 75, 91a, and 91b (Appendix 2 provides details) but has no direct authority over the state systems. The BMBW is fully responsible for academic research, financial aid, and non-school vocational training and jointly responsible with the states for university construction and educational planning at all levels.

2. *Federal Planning Committees*. To facilitate joint action, the German Parliament established two planning committees in Bonn: 1) 1969 Planning Committee for University Construction (*Planungsausschuss fuer den Hochschulbau*) and 2) 1970 Federal-State Commission for Educational Planning and Advancement of Research (*Bund-Laender-Kommission fuer Bildungsplanung und Forschungsforderung* - BLK) and a third in Berlin 3) 1970 Federal Institute for

Research into Vocational Training (*Bundesinstitut fuer Berufsbildungsforschung)* now the Federal Institute for Vocational Training (*Bundesinstitut fuer Berufsbildung* - BIBB). All consist of representative from federal and state governments and solicit advice from leading educators, scientists, industrial experts, and scholars in carrying out their duties. The first is primarily concerned with University expansion while the second is responsible for preparing long-term educational plans and monitoring pilot projects. The BLK consolidated the responsibilities of two previous planning councils: the 1957 Science Council (*Wissenschaftsrat*) for higher education, and the 1965 German Education Council (*Deutscher Bildungsrat*) for elementary, secondary and vocational schools. In 1973, the BLK issued its Comprehensive Plan for Education (*Bildungsgesamtplan*) which provided a framework for education through the year 1985. The plan fell victim to disagreement in later years and was not renewed. The Commission does, however, still actively supervise ad hoc projects such as new technology programs, environmental education, employment prospect surveys, programs for education of foreign, talented and handicapped children, and vocational training. The last organization, the BIBB, includes a joint federal-state Central Committee or board that supervises and links vocational training structures and school programs through federal training ordinances or regulations (*Ausbildungsordnungen*).

3. ***State ministries.*** The Basic Law places education directly in the hands of the state. Therefore, each state has its own Ministry of Education and Cultural Affairs (*Kultusminister*) that is in charge of all aspects of education. It is key to note that there is no federal inspection of state schools and the Ministers are not responsible to the Federal Minister. Each state develops its own curriculum, approves texts, organizes school structure, administers examinations and supervises teachers as members of the state civil service. Since 1969, the state establishes universities with substantial federal assistance. Finally, the state ministry directly supervises public and private grammar schools (*Gymnasien*), some intermediate schools (*Realschulen*), universities, and local administrative authorities within its jurisdiction.

4. ***States Coordinating Committee.*** After World War I, the states recognized the inefficiency of their multiple systems and in 1948 they voluntarily formed a coordinating body located in Bonn. It is called the Standing Conference of the

Ministers of Education and Culture (*Standige Konferenz der Kultusminister der Laender in der Bundesrepublik Deutschland*) also called the (*Kultusminister Konferenz* - KMK). The conference has achieved many voluntary agreements on school structure, length of compulsory schooling, school year and calendar, teacher training, curriculum, grading, and leaving certificates. The conference ministers advocate the unanimous recommendations before their Parliaments, which then pass them as state law.

5. ***Local***. The states delegate some of their responsibility to counties (*Landkreise*) or cities (*Staedte*) through local supervising offices. The official administrative chain (*Dienstweg*) runs from the Minister of Education to the regional president (*Regierungspraesident*) to the local superintendent (*Schulrat*) to the individual school principal (*Schulleiter*).

a. **Local region**. The intermediate regional office (*Regierungsbezirke or Oberschulaemter*) is responsible for the administration of several counties and has a team of inspectors (*Schulraete*) that supervise the vocational schools (*Berufsschulen*).

b. **Local district**. The district office (*Schulamt*) is responsible for the primary schools (*Grundschulen*), main schools (*Hauptschulen*), remedial schools (*Sonderschulen*), and in some states the intermediate schools (*Realschulen*). The office assumes some responsibility for academic matters and provides staff expertise in curriculum development, counselling, and teaching techniques.

c. **Local school**. The school (*Schule*) is responsible for selecting approved texts, instructing approved curricula, and maintaining the school facilities.

d. **Local industry**. Industrial and business firms (*Betrieb*) are responsible for facilities and instructors used to provide in-plant practical apprenticeship training (*Betriebliche Ausbildung*). [Note: They are not subject to the *Laender* but must adhere to federal vocational training ordinances as administered by competent bodies or chambers of industry.]

E. Academic, Social, International and Political Organizations

Society expresses diverse views on education through a wide variety of sources, with many groups at all levels substantially impacting educational policy formation. Advisory commissions, research centers and international organizations provide education and parliamentary officials with expert data and opinions. The European Community (EC) also sponsors a number of educational programs aimed at European integration. In addition, churches, teacher and trade unions, craft associations, chambers of commerce, parent councils, pupil councils and political parties are all vehicles through which citizens make their voices heard. The impact of each of these groups is described in more detail in Appendix 5.

E. Financing

Public education, from pre-school through university, is free of charge: i.e., no tuition or fees. It is financed through federal, state and local general, church and industrial taxes or direct expenditures. In 1985, the federal education budget was 4.7% of GNP or 14.5% of the total domestic budget, totalling 85.3 billion DM -- 6.9B (8.1%) from federal sources, 64.1B (75.1%) from states, 14.3B (16.8%) from local municipalities. In 1986, an additional 32.8B (1986) was spent by private industry for in-firm vocational training and 7.2B by the Labor Department for training. More than half (46.8B) of 1985 expenditures went to the primary and secondary school systems, approximately a quarter (21.4B) to higher education, and most of the remainder (17.1B) to research and advanced training.[4] Appendix 6 shows general trends of funding and expenditure from 1970 to 1990. Each level has specific financial responsibilities as follows:

1. ***Federal***. The federal government (*Bund*) funds university staff development, research, educational statistical analysis, 50% of university construction costs, and 65% of full and part-time student living grants or loans (*BAfoeG*) while students attend vocational training or re-training past the compulsory stage.[5]

2. ***States (Laender)***. The *Laender* bear the majority of educational costs -- including salaries of all teachers and administrators, construction, maintenance and operating costs for all secondary schools (with the exception of *Hauptschule*), 50% of university construction, and 35% of student aid.[6] The *Laender* subsidize pre-schools (*Kindergaertens*) and non-profit private schools which use approved curricula. In church schools the differential is covered by donations and in other cases graduated by income, so required tuition is usually insignificant. In addition, *Laender* tax equity schemes provide additional funds to specific low-income districts to maintain equity. [Note: 1988 teacher salaries compare with industrial workers as follows: primary teachers 114-178%, secondary 129-210%.][7]

3. ***Local***. The municipalities cover transportation, clerical and maintenance personnel salaries, teaching materials, and all costs to build, maintain and operate most local primary (*Grundschule*) and main (*Hauptschule*) schools. Private businesses fund instructors, apprenticeship wages, and equipment for on-site vocational training and are required to expend 2.3% of payroll on worker training.[8]

G. Structure in Brief

The German education system is composed of five levels: elementary, primary, secondary lower, secondary upper, and higher education. Appendices 7 through 12 provide various visual representations of the system as described below:

1. ***Elementary***. At the elementary level (*Elementarstufe*), private pre-schools (*Kindergaerten*) for children ages 3-5 are voluntary and separate from the public education system.

2. ***Primary***. The primary level (*Primarstufe*) offers public, optional pre-schools (*Schulkindergaerten*) for school-age children with delayed admission. The follow-on primary school (*Grundschule*) provides a four year compulsory, common curricula. In some *Laender* it continues through orientation classes 5-6 (*Orientierrungsstufe*).

3. ***Secondary I***. Based on early performance, aptitude assessment and parental preference, students are placed in one of four different secondary lower level

schools (*Sekundarstufe I*): vocational main/secondary modern (*Hauptschule* - classes 5-9 or 10), technical middle/intermediate (*Realschule* - classes 5-10), academic grammar (*Gymnasium* - classes 5-10), or combined comprehensive (*Gesamtschule* - classes 5-9 or 10). Pupils are reassessed after a common orientation curriculum (classes 5-6) and again after class 9 or 10. Qualified pupils are transferred between school types as necessary.

4. ***Secondary II***. Secondary upper level (*Sekundarstufe II*) consists of three tracks with a variety of schools: part or full-time vocational school (e.g. *Berufsschule* - classes 10-12), full-time secondary technical school (*Fachoberschule* - classes 11-12), or upper level academic school (*Gymnasiale Oberstufe* - classes 11-13). Students over 18 years of age with workforce experience can obtain further secondary level training in advanced technical schools (*Fachschulen*).

5. ***Higher education***. Higher education (*Hochschulen*) consists of three types of institutions: fine arts institutions, specialized polytechnics (*Fachhochschulen*), and scholarly universities or colleges (*Universitaet/Hochschulen*).

6. ***Special schools and continuing education***. Physically and mentally handicapped students attend special schools (*Sonderschulen*) from pre-school through upper level vocational school. Adults can acquire leaving certificates later in life through "Second Way" evening schools (*Abendgymnasium* or *Abendrealschulen*) and sixth-form university preparatory schools (*Kollegs*).

H. Compulsory Requirements

Compulsory education (*Schulpflicht*) extends for 12 years from age 6 to 18. Children whose 6th birthday falls before 30 June begin school on 1 August of that year (early entry can be requested and ability tested for those born between 30 June - 31 December). Full-time attendance is required from grades 1-9 (age 6-15). Part-time vocational programs in grades 10-12 (age 16-18) are required for those who elect not to attend full-time classes.

I. Academic Schedule

1. ***School year***. The 1964 Hamburg Agreement established an official school year from 1 August-31 July. Most of Germany's 32,000 schools (1986) operate for 212 days each year [Note: the original 6-day week has been adapted to a 5-day business week by releasing 2 Saturdays a month and extending morning classes] with 75 vacation days: summer (7 weeks), autumn (2 weeks), Christmas (2 weeks), Easter (3 weeks), and a few short holidays. A small but increasing number (800 in 1980) of "all-day" schools operate on a complete 5-day week. Summer vacations are staggered by locale between 1 July and 10 September (rotating a week earlier each year), to relieve overcrowding of transportation and resort facilities.[9]

2. ***Class day***. Most teaching occurs in the morning and early afternoon with minimal extracurricular activities in the afternoon. The number of class hours each week increases from 20-36 hours as the age of the student increases, (i.e. 20 preschool, 24-29 primary, 30 orientation, 32 secondary lower, and 36 secondary upper). A standard day in grade 5 or 6 consists of five 45 minute classes separated by 10 minute breaks. Some classes are combined into inter-disciplinary 90 minute blocks. Teachers carry a load of 24-28 hours, with lighter schedules at upper level schools.

3. ***University year***. Universities provide 8 months of study a year. Two semesters, Summer (April-July) and Winter (October-March) are punctuated by summer (8 week), spring (4 week), and winter (4 week) vacations.

J. Enrollment

1. ***General***. In 1986, total enrollment in all educational institutions was 12.6 million, 2.1 million (16.7%) of which attended private school; includes 564,346 in upper grades and 1.54 million in pre-schools.[10] 62,300 (.5%) children were enrolled in public pre-school, 1.54 million (12.2%) in private pre-school, 2.29 million (18.2%) in *Grundschule*, 224,900 (1.8%) in separate orientation, 1.23 million (9.8%) in *Hauptschule*, 975,500 (7.7%) in *Realschule*,

1.66 million (13.2%) in *Gymnasium*, 220,100 (1.7%) in *Gesamtschule*, 261,400 (2.1%) in *Sonderschule*, 2.64 million (21.0%) in vocational/technical schools of all types [70.3% of those were in the part-time *Duale-System*], 109,200 (.9%) in evening schools and academies, and 1.37 million (10.8%) in colleges and universities. Appendix 13 provides more detailed enrollment figures for specific schools from 1970-90 and Appendix 14 shows the decrease in *Hauptschule* enrollment as a percentage of age group from the 1950'-80's. [Notes: May not total due to rounding.][11]

2. ***Pupil-teacher ratios***. In 1986, there were 452,000 teachers with a pupil-teacher ratio of 15.3.[12] In higher education, the pupil-teacher ratio is 17:1 at university and 30:1 at *Fachhochschulen*. (In the five new *Laender* the ratio is 5:1).[13]

3. ***Females and foreign students***. The overall pupil population has decreased in recent years to approximately 10.7 million (without 1.5 million private pre-schoolers), but should remain stable through the year 2000. Females are well represented at all levels except higher education. Their 1989 percentage of tertiary enrollment (38%), although improved from the early 1960's (23%)[14], fell far below their number in the general population (52%)[15]. In 1989, 930,400 pupils (10.3%) were children of guestworkers (*Gastarbeiter*) from Turkey (47%), Yugoslavia, Italy, Greece, Spain, Austria and Portugal -- compared with 1.7% in 1970. Foreign pupils were overly represented in *Hauptschule* (20%) and *Sonderschule* (17.4%) and underrepresented in *Realschule* (7.8%) and *Gymnasium* (4.8%).[16]

K. Language

The official language for all instruction is German. However, special provisions are made for an increasing number of disadvantaged foreign pupils who live in large urban areas and suffer from severe cultural and language barriers. The goal is to integrate non-German pupils into regular school programs as soon as possible. However, special bilingual and multi-cultural education has been incorporated at various school levels in two ways: 1) special classes in German and regular subjects, and 2) supplementary lessons (3-6 a week)

conducted in their mother tongue by a foreign teacher to foster native language and culture and permit eventual return home.

L. Assessment and Certification Measures

1. ***Grades and promotion***. In an attempt to reduce pressure for achievement, pupils in classes 1-2 receive reports on learning behavior rather than grades. At the end of the year, pupils in higher classes receive a grade in each subject. Grades are based on a subjective assessment of assigned written work for grading (*Klausuren*) and all other work, largely oral class participation (*Sonstige Mitarbeit*). They are compared with other students throughout the year rather than on final exams. Appendix 15 describes the 6-point scale of grading (*Notenskala*). A more detailed grade-point system is used at the upper levels of the *Gymnasium* and used as a factor in university entrance. When pupils do not satisfactorily complete a class, they fail to promote and repeat the year. If they fail a second time at the primary level they are transferred to a special school (*Sonderschule*). At the secondary level they repeat the same class again, but in a different type school (e.g. *Realschule* to *Hauptschule*).

2. ***Certificates and qualifications***. (See Appendix 16 for a complete listing of certificates.) After satisfactory completion of each level of schooling, the pupil is awarded a certificate which admits to the next higher level. The main school certificates are the *Hauptschule* leaving certificate, *Realschule* leaving certificate, vocational school qualification, *Fachoberschule* leaving certificate, and the *Gymnasium* leaving certificate. The last two qualifications require the pupil to successfully pass a state examination. The *Arbitur* is a challenging state oral and written examination in a variety of subjects. (See pg. 29 under certificate for full description and Appendix 17 for a sample certificate.) In addition, national industry councils, chambers of commerce and individual states issue licenses to certify practical skill or professional performance.

3. ***University degrees***. Pupils at university take interim examinations which are graded on a 4-step scale: 1-distinction, 2-good, 3-satisfactory and 4-

passed. In addition to state certification as a civil servant or licensed medical, legal, etc. professional, there are four levels of academic completion: 1) diploma, 2) Master of Arts degree, 3) research doctorate degree (usually but not always a second degree) and 4) second doctorate *Habilitation* degree. Higher education concludes with some combination of comprehensive oral and written exams, dissertation or state examination. Most professionals have both state and academic credentials.

M. Performance

In 1986, 65,200 (6.3%) pupils left school after completing compulsory schooling but without achieving the basic *Hauptschule* certificate. 27.5% of all school-leavers in 1986 received the *Hauptschule* certificate, 38.0% the intermediate or equivalent qualification, 6.5% the *Fachhochschule* qualification, and 21.7% the general university entrance qualification. 66% received some type of vocational qualification.[17] Appendix 18 shows schools leavers from various schools from 1970-1990. In many cases pupils with academic certificates, enter the *Duale-System* to earn a vocational qualification prior to entering university [17% of all *Gymnasium* graduates enroll in the *Duale-System* prior to college]. The German system provides challenging curricula and maintains high standards at all schools, resulting in a 99% literacy rate and a well-educated and highly skilled workforce by all international standards.[18]

N. Materials, Methods and Equipment

1. ***Materials***. State Ministries of Education and Culture accept expert advice and *KMK* recommendations as they prepare standard *Laender* curricula and approve privately published texts. Local schools and teachers then prepare detailed curricula and select from approved texts. Most materials are provided to pupils free of charge, although some localities charge up to 1/3 of textbook costs.

2. ***Methods and equipment***. The German lead in instructional technology (e.g. slide projectors, maps, radios) was destroyed in World War II. However, new technologies expanded once again during the 1950's and 60's (e.g. tape

recorders, films, overheads, television). Experiments with programmed learning eventually failed. Today's universities and colleges use advanced technologies funded in the mid-80's and most industrial apprenticeship programs use state-of-the-art equipment. Schools use video equipment, computers, and some subject specific multi-media packages, although conventional equipment dominates at the primary and secondary levels.

O. Teacher Preparation

Until the 1970's, teachers were divided into 2 groups with quite different status: 1) *Grundschule*, *Hauptschule*, and *Realschule* teachers - mainly females without *Arbitur* who trained at teacher institutes (*Institute fuer Lehrer-bildung* or *Paedagogische Institute*) and 2) *Gymnasium* teachers - mostly males who attended university and obtained degrees in their subjects but received no teacher preparation. Reforms in the 1970's raised institute standards to the level of higher education as *Paedagogische Hochschulen* and incorporated many into existing universities. In addition, all teachers are now required to hold the *Arbitur* (or equivalent) and participate in preparatory teacher training. *Gymnasium* teachers always received rigorous training and enjoyed significant pay, status and benefits as state civil servants. Today's teachers are more equal, although some training and pay differences remain. A description of teacher preparation at each level follows: [Note: Women *Gymnasium* teachers are still underrepresented at 36% versus intermediate 52%, and primary 64%.][19]

1. ***Pre-school***. Pre-school teachers (*Kindergaertnerin*) from *Realschule* are trained at specialized 4 year secondary schools (*Kindergaertnerinnenseminare*). The course combines developmental theory with a year of practical experience.

2. ***Primary and Secondary I***. Public pre-school (*Schulkindergaerten*), primary (*Grundschule*), main (*Hauptschule*), intermediate (*Realschule*) and comprehensive I (*Gesamtschule*) teachers are trained in colleges of education (*Paedagogische Hochschulen*). The course of academic studies (*Studium*) lasts a minimum of 6 semesters and includes general studies, a double major, and professional subjects (e.g. psychology and teaching methods). This is followed by First State Examinations (*Erste Staatspruefung fuer das Lehramt*) in a particular

subject(s). Successful completion provides 2 year certification as intern teachers in the preparatory training phase (see below). Most also receive an academic diploma (*Diplom-Paedagog*), Masters degree, or doctorate in their field.

3. ***Gymnasium and Secondary II.*** *Gymnasium* teachers, academic instructors at vocational schools, and upper level technical school instructors (*Fachschule*) train at university for a minimum of 8 semesters [usually 10, sometimes 12]. They take a dual-major [vocational-one practical major] plus courses in psychology, sociology and theory of education. Graduates follow the same process of state certification and preparatory training as other teachers (see above) and receive some type of degree.

4. ***Practice teaching.*** All teachers undergo a preparatory phase of school-based training (*Referendarzeit* or *Vorbereitungsdienst*) after academic instruction. Each intern is assigned to a school and receives intensive practical training through an associated institute (*Studienseminar*). Training includes 12 hours a week of supervised practice teaching and weekly seminars with experienced teachers or subject specialist tutors (*Fachleiter*) for two years. Activities include discussions, peer evaluation, private study, research papers, and a short dissertation. Completion of follow-on Second State Examinations (*Zweite-staatspruefung fuer das Lehramt*) awards permanent certification (*Studienrat*) on probation. Unions and schools provide continuing in-service training. After 5 years, teachers become tenured state civil servants (*Beamter auf Lebenseit*) and receive pensions at age 65.

5. ***Vocational.*** Vocational skill instructors must have some teaching knowledge and be certified as Master craftsmen (*Meister*) or advanced industrial technicians (*Techniker*). Most supplement extensive experience with completion of 2-4 year upper level technical schools (*Fachschule* or *Fachinstitute*) and a year of practice teaching.

6. ***Special education.*** Special education teachers must meet general education qualifications, perform well and then complete an additional 1-2 year university program.

7. ***University professors***. Students who hold a doctorate must present a second dissertation (normally after 5 years as an assistant professor). They must also give sample lectures before they receive a second doctorate called the *Habilitation* and an appointment to a full professorship on a faculty.

III. SCHOOL TYPES (DESCRIPTION AND CURRICULUM EMPHASIS)

A. Framework

The German system is quite complex. It may help to place the various schools within the framework of five general stages. It may also be helpful to recall that some combination of the Primary, Secondary Level I and Secondary Level II alternatives is compulsory (the latter at least part-time) for a total of 12 years. The typical pattern (see Appendix 7) is *Hautpschule* to *Berufsschule* to *Fachschule*, *Realschule* to *Fachoberschule* to *Fachhochschule*, and *Gymnasium* to *Universitaet* -- however, the 1970's reforms have added a great variety of cross-overs and alternative paths.

In describing the schools, I will concentrate on four characteristics: 1) entrance requirements, 2) curricula emphasis, 3) leaving qualifications or certificates, and 4) follow-on opportunities.

The appendices provide useful organizing information as follows: Appendix 19 lists all the schools on one page with their German equivalent names. Appendices 7 through 12 are especially helpful in presenting visual diagrams of the complete system and Appendices 20 and 21 definitions of the various schools. Appendix 16 lists all qualification certificates. Finally, Appendix 22 provides a glossary of terms.

The following terms differ from our normal usage:

class = grade level
streaming = tracking
extended courses = advanced courses
working group = workshop or seminar
special achievements = good grades
pupil = student in an academic setting
trainee = student in a practical workplace setting
in-plant instruction = on-the-job training

information studies = computer literacy instruction
extension school = program facilitating transfer to higher school type
setting down = repeating a year

B. Pre-School Education (*Elementarstufe*)

1. ***Day-care nurseries (KINDERHEIME/KINDERHORTE) and pre-schools (KINDERGAERTEN and VORKLASSE)***. These institutions are run by individuals, businesses, worker associations and religious organizations and are not part of the formal education system. Staff personnel are certified child care and social workers with technical certification bu. no degree. Attendance fees are required, but large state and local subsidies reduce them to minimal charges. Voluntary, public pre-schools (*Vorklasse*) for older children (age 5) are attached to *Grundschulen* but are funded by and report to the Minister of Social Welfare.

a. Entrance: Day-care and nursery facilities (*Kinderheime/Kinderhorte*) are available for very young children. Pre-schools (*Kindergaerten*) accept children ages 3-5 and public pre-schools (*Vorklasse*) children age 5. Entrance is based solely on availability of places. For many years Article 6 of the Basic Law [which emphasizes parental responsibility] slowed pre-school development. However, during the period of reform in the 70's, the number of available places increased by 80% from 817,000 (1960) to 1.47 million (1986), places available for 3-6 year olds increased from 33% (1960) to 80% (1986). In 1979 places existed for 100% of 5 year olds, although total places remain scarce in urban areas.[20]

b. Curriculum: These "schools" emphasize play and social development. They do not teach the three R's.

c. Certificate: There is no leaving certificate or graduation.

d. Follow-on: When students are 6 years of age they enter compulsory public primary schools.

C. Primary Education (*Primarstufe*)

1. ***School Kindergarten (Schulkindergaerten)***. The school kindergarten is a special public pre-school preparatory class for children of compulsory school age (6+) who are not mature enough for entry into the public primary schools. It is associated with a particular primary school and is part of the educational system with certified civil servants as teaching staff.

a. Entrance: Children of compulsory school age (6+) who are not ready for regular primary school.

b. Curriculum: The curriculum offers special basic courses to prepare slower children for primary school.

c. Certificate: There is no leaving certificate or graduation.

d. Follow-on: When students are assessed as ready they enter the regular primary school. If diagnosed as handicapped (learning, mental, physical) they are placed in special schools.

2. *Primary School (Grundschule)*. Compulsory primary school begins at age 6 and consists of flexible blocks of interdisciplinary and interclass activities. The aim is to transition children from play to purposeful activity in preparation for secondary school.

a. Entrance: All children except those that are assessed as not yet ready, begin compulsory primary school at 6 years of age.

b. Curriculum: The curriculum (24-29 hours a week) emphasizes German (*Deutsch*), mathematics (*Mathematik*), and local history/geography (*Geschichte/Erdkunde*) with additional studies in religion (*Religionslehre*), art (*Kunsterziehung*), music (*Musik*), physical education (*Leibesuebungen*), crafts and special lessons in the mother tongue.

c. Certificate: Students are promoted to the secondary level based on graded performance but no certificate is awarded.

d. Follow-on: Upon completion of class 4, the student and parent choose between an independent orientation, main or comprehensive school. If the parent prefers and the primary teacher concurs based on performance and aptitude assessment, the child can enter the *intermediate* or *grammar* school. Although parental preference has recently received greater weight, a test may be required to remain after a probationary period.

D. Secondary Education - Lower Level (*Sekundarstufe I*)

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1. ***Orientation Level-Mixed Ability-Trial Grades Classes 5 & 6 (ORIENTIERUNGS-STUFE-ERPROEBUNGSSTUFE-FOERDERSTUFE)***. Orientation classes 5 and 6 are found in various settings: extended *Grundschule*, separate orientation schools, and the first two years of each secondary school (*Hauptschule*, *Realschule*, *Gesamtschule*, and *Gymnasium*) depending on the *Laend*. These classes were developed during the 1970's to permit a trial period during which permanent track selection was delayed and primary student abilities assessed further.

a. Entrance: All students who complete grade 4 enter orientation classes at some institution.

b. Curriculum: The curriculum (30-32 hours a week) is similar to that of *Grundschule* in emphasizing German, mathematics, and local history/geography, but adds a foreign language (*Fremdsprachen*) (usually English), and individual physics (*Physik*), chemistry (*Chemie*) and biology (*Biologie*) instead of general science. Additional studies include religion, art, music, physical education (*Liebeserziehung*), crafts, and special lessons in a mother tongue.

c. Certificate: Students are promoted based on graded performance throughout the year. There are no final exams and no final certificates.

d. Follow-on: Students are carefully assessed and based on performance and desires may transfer to or among any of the 4 secondary schools (*Hauptschule*, *Realschule*, *Gesamtschule*, or *Gymnasium*) at the end of class 6.

2. ***Main School/Short-course/Secondary Modern Classes 7 to 9 (HAUPTSCHULE).*** The largest number of secondary school students (including a large percentage of foreign and lower strata), still attend *Hauptschule*. In recent years, however, the percentage has decreased greatly as they opt for other secondary schools which provide more follow-on opportunity (see Appendix 14); down from 70.2% (1960) of secondary students to 38.0% (1986).[21] The main aim of *Hauptschule* is to provide basic knowledge of the working world so students can make an informed career choice. Students with special achievements in advanced classes can transfer to a *Realschule* extension school in grade 8, 9, or 10 or a *Gymnasium* extension school in grade 8 (see Appendix 10).

a. Entrance: No special assessment is required for entrance to the main school classes 7-9.

b. Curriculum: The curriculum (30-36 hours a week) includes the same subjects as orientation classes (see above) with the addition of values, social studies, and occupational studies as well as choices from additional subjects such as technical crafts, domestic science, typing, shorthand, and information studies. The mandatory occupational studies course "Introduction to working life" (2 hours a week in grades 8 and 9) is designed to assist in orienting toward employment careers. Free vocational guidance and 2 weeks of mandatory practical experience in a firm are provided to make job choice easier. Courses are offered at 2 levels of difficulty : basic (*Grundkurse*) and extended or advanced (*Erweiterungskurse/Aufbauzuege*).

c. Certificate: Class 9 can be completed with three different certificates: 1) completion with poor performance leads to a non-qualifying leaving certificate, 2) satisfactory completion based on good performance leads to a secondary school graduation certificate (*Hauptschulabschluss*), 3) completion of advanced German, Math and English courses with high grades leads to a secondary school graduation certificate with special achievements (*Hauptschulabschluss* with special achievements).

d. Follow-on: There are multiple routes to follow from *Hauptschule:* 1) Non-qualified leavers enter part-time vocational school in the *Duale-System* of apprenticeship or evening *Hauptschule*, 2) regular graduates can enter an optional *Hauptschule Klasse 10* (Type-A), part-time vocational school, full-time vocational school, or a vocational extension school, 3) graduates with special achievements are admitted to *Hauptschule Klasse 10* (Type-B), *Realschule Klasse 10*, evening *Realschule* or preparatory course for *Abendgymnasium*, part-time vocational school, full-time vocational school, or a vocational extension school.

3. ***Main School/Secondary Modern Class 10 (HAUPTSCHULE KLASSE 10).*** Class 10 at *Hauptschule* is optional with the end of compulsory full-time schooling in class 9. For those students who choose to complete the class there are two types of curriculum, Type-A or Type-B.

a. Entrance: Pupils are placed in one of two types of curriculum (Type-A or Type-B) based on their previous performance and leaving certificate from class 9, i.e. *Hauptschulabschluss* for Type-A or *Hauptschulabschluss* with special achievements for Type-B.

b. Curriculum: The Type-A curriculum concentrates on Natural Sciences and develops practical abilities through occupational studies while the Type-B curriculum emphasizes German, mathematics and English.

c. Certificate: The Type-A certificate combined with completion of vocational training, the Basic Training Year or night school courses grants the specialized high school maturity leaving certificate (*Sekundarstufe I - Mittlerer Bildungsabschluss*) (for other names see Appendix 16). The Type-A certificate combined with completion of vocational training, the Basic Training Year or night school courses grants the specialized high school maturity leaving certificate (*Sekundarstufe I - Mittlerer Bildungsabschluss*). If they receive good marks in German, Math and English and 3 additional subjects they receive the additional permission to enter an upper level *Gymnasium*. The *Hauptschule Klasse 10* Type-B certificate is equivalent to the (*Sekundarstufe I - Mittlerer Bildungsabschluss*).

d. Follow-on: The Type-A certificate admits to part-time *Duale-System* vocational school, full-time vocational school, or a vocational extension school. The Type-A certificate combined with completion of vocational training, the Basic Training Year or while working night school courses grants the specialized high school maturity leaving certificate (*Sekundarstufe I - Mittlerer Bildungsabschluss*) admits to *Fachoberschule*. The *Hauptschule Klasse 10* Type-B certificate admits to the *Fachoberschule*. The Type-B certificate with special achievement in German, mathematics, English and 3 other subjects admits to upper level *Gymnasium* or comprehensive school.

5. ***Middle/Intermediate School Classes 7 to 10 (REALSCHULE).*** The *Realschule* provides more advanced education than the *Hauptschule* but is less academic than the *Gymnasium*. It includes one more required full-time year than *Hauptschule* (7-10) and its certificate is highly valued by service industry and public service in conjunction with follow-on compulsory school or practical training. The *Realschule* is truly a "middle" school due to the dual-perspective it takes toward studies and employment. It offers increased options as it prepares students to enter middle-level industry/technical jobs, but permits them to transfer to advanced vocational schooling or more academic *Gymnasium* at secondary level II. More students are choosing to attend *Realschule*. Its percentage of all secondary level I students has increased by 121% from 13.2% in 1960 to 29.2% in 1986.[22]

a. Entrance: Satisfactory orientation level assessment is required for entrance to *Realschule*. However, if the parent prefers the student can enter *Realschule* for a trial period involving further performance testing. Talented *Hauptschule* students with special achievements may enter a special extension form of *Realschule* (classes 8, 9, and 10) or may transfer from *Hauptschule* to a special *Realschule Klasse 10*.

b. Curriculum: The curriculum (30-34 hours a week) includes general courses in German, religion, English, history, biology and chemistry, music, and physical education but adds a required choice between three different major course emphases starting in grade 8: Group I - math, sciences and technology to prepare for a technical career, Group II - business and economics law, accounting for business and administrative careers, Group III - creative art and social studies. In addition they choose a minor among a large number of optional courses in either: 1) languages (a second foreign language such as French is required to attend the upper level of *Gymnasium*), 2) math and science, or 3) economic and social studies (e.g. information sciences).

c. Certificate: Students receive the equivalent of the secondary school leaving certificate (*Hauptschulabschluss*) after satisfactorily completing class 9. Upon completion of class 10 they receive the specialized high school maturity leaving certificate (lower and middle grades) (*Sekundarstufe I - Mittlerer Bildungsabschluss*). If they receive good marks in

German, math and English and 3 additional subjects they receive the additional permission to enter an upper level *Gymnasium*.

d. Follow-on: The *Realschule* leaving certificate *Mittlerer Bildungsabschluss* admits to part-time vocational training (or practical part-time employment at the middle-level of civil service), full-time vocational school, senior technical or secondary high school, evening school (*Abendgymnasium*) or university preparatory school (*Kolleg*) later in life for adults. Students with special achievement permission can attend the upper level of a general *Gymnasium* extension school or a specialized technical grammar school.

8. ***Academic Secondary/Grammar School Lower Level I Classes 7 to 10 (GYMNASIUM).*** This is the basic academic college preparatory school which provides a general education (*Allgemeinbildung*) and grants entrance to university or polytechnic colleges and provides the basis for follow-on professions (e.g. law, teaching, medical) and or vocational/technical training options. It is a school in two parts that span both the secondary level I and II levels. The 1970's reforms put great emphasis on expanding the *Gymnasium* and access to its final qualification for university entrance, enrollment in both level I and II combined increased dramatically from 957,900 (1965) to 1.65 million (1986) an increase from 5-10% of age group to 27%.[23]

a. Entrance: Students may enter from *Grundschule* if teachers rate them "suitable" or "perhaps suitable", but if "not suitable" they must take trial lessons and participate in a probationary period. Talented *Hauptschule*, *Realschule*, or full-time vocational school students with special achievements may take an exam to switch and enter a special extension form of *Gymnasium* (classes 8, 9, and 10).

b. Curriculum: The curriculum (30-34 hours a week) includes core courses (*Pflichtbereich*) and special areas of emphasis (*Wahlpflichtbereich*). The core is the same in all *Gymnasium* including math, German, religion, history/geography, social studies, physics, chemistry, biology, arts (*Bildende Kunst*), music and physical education. However, there are technically three types of *Gymnasium* each with a different emphasis on compulsory subjects of the student's choice (*Wahlpflichtbereich*): 1) classical (*Altsprachliches Gymnasium*) concentrates on three foreign languages (e.g. Latin, English and Greek), 2) modern language (*Neusprachliches Gymnasium*) concentrates on a minimum of two modern foreign languages, (e.g. English, French, or Russian), and 3) natural science (*Mathematischnaturwissenschaftliches Gymnasium*) reduces the time spent on two foreign languages and concentrates on science. The classical schools have all but disappeared and in many cases the modern language and natural science options are combined in one school. Since the 70's additional types of *Gymnasium* have been created with the same core but other options (*Wahlpflichtbereich*) emphasized: e.g. business, technical, social science, agriculture -- some with occupational visits to commercial and industrial enterprises.

c. Certificate: Three levels of leaving certificates can be obtained: 1) the equivalent of the secondary school leaving certificate (*Hauptschulabschluss*) after satisfactorily completing class 9, 2) upon completion of class 10 they receive the specialized high school maturity leaving certificate (lower and middle grades) (*Sekundarstufe I - Mittlerer Bildungsabschluss*), and 3) if they receive good marks in German, math and English and 3 additional subjects the equivalent of a *Mittlerer Abschluss* with the additional permission to enter an upper level *Gymnasium*.

d. Follow-on: Pupils are graded harshly and it is not uncommon to repeat a year of *Gymnasium*. If the course is too difficult, the student can transfer to the main or intermediate school at any time. There are three routes to follow from *Gymnasium* Level I: 1) those who

leave with a 9th grade certificate can enter part-time vocational school in the Dual-apprenticeship system, the optional *Hauptschule* or *Realschule Klasse 10*, part-time vocational school, full-time vocational school, or a vocational extension school, 2) those who leave with a 10th grade *Realschule* equivalent certificate can enter part-time vocational training (or practical part-time employment in the middle levels of civil service), full-time vocational school, senior technical or secondary high school, university preparatory school (*Kolleg*) later in life for adults, or evening school (*Abendgymnasium*), and 3) those who have the permission to attend the upper level of a *Gymnasium* can choose among different types of schools with different emphases.

7. ***Comprehensive school Lower Level Classes 7 to 10 (GESAMTSCHULE)***. During the 1970's a new form of school was developed to combine all the programs of the *Hauptschule*, *Realschule*, and *Gymnasium* in one school and increase the ease of transfer and options for further vocational and academic options. There are two forms 1) integrated (*Integrierte*) and that has all children in groups but in different classes and has them choose increasing numbers of compulsory options among courses, and 2) additive or cooperative (*Kooperative*) has children in 3 separate schools in one location to facilitate transfer between schools. Many comprehensives are run as whole-day schools with hot meals at noon and extracurricular or academic coaching options in the afternoon. The *Gesamtschule* has never been truly accepted and represents only about 5% of each age group, 219,000 in 1989.[24]

a. Entrance: There are no special admissions procedures from *Grundschule*.

b. Curriculum: The curriculum of each of the secondary I schools is available at comprehensives.

c. Certification: All certificates from *Hauptschule*, *Realschule*, and *Gymnasium* lower are available and awarded as in the individual schools at the comprehensives.

d. Follow-on: All opportunities of the above schools are available from comprehensives.

E. Secondary Education - Upper Level (*Sekundarstufe II*)

1. ***Part-time Vocational Training Classes 10 to 12 (BERUFSSCHULE)***. These part-time schools form the classroom schooling that when combined with practical in-firm or in-plant training (*Betriebliche Ausbildung*) through apprenticeship (*Ausbildungsdauer*) form the DUAL-SYSTEM (*Duale System*) of vocational training (*Berufliche Ausbildung*). It usually lasts 3 years and allows early school leavers to complete their 12 years of compulsory education requirements to age 18 in a part-time form and complements worksite apprenticeship training. In addition, more and more higher school leavers are returning to the *Duale-System* for practical training. Its main purpose is to provide a smooth

transition to work for the large number of pupils not academically inclined, with costs shared by industry and education.

a. Entrance: After *Hauptschule* or higher schools may students choose to enter the *Duale-System* of part-time vocational training with a part or full-time job. They may enter after class 9 with the secondary school leaving certificate (*Hauptschulabschluss*) or with any higher certificate (e.g. *Realschule* after class 10 with the specialized high school maturity leaving certificate *Sekundarstufe I - Mittlerer Bildungsabschluss*). [Note: Approximately 63% of all secondary level students choose this track or stream after completing mandatory full-time schooling with class 9 or 10. These students are increasing coming from schools other than *Hauptschule* and entering after completing previous compulsory school through class 12 or 13 – in 1970 80% of all apprentices came from *Hauptschule* but in 1986 that had decreased to 45%, with 44% entering after *Realschule*, and 15% after completion of academic schooling for polytechnic or university entrance.)[25]

b. Curriculum: The curriculum (6-12 hours a week) is usually 1-2 days a week but can be taught in longer block (*Blockunterricht*) sessions. It consists of 40% general or basic training (*Grundausbildung*) in subjects such as German, social studies, economics, religion, community studies, and physical education and 60% specialty instruction (*Fachausbildung*) in five technical areas - industry, commerce, home economics, agriculture, and mixed (e.g. technical drawing, mathematics). The basic studies may be obtained through an optional first year of full-or part-time Basic Training Year (*Berufsgrundbildungsjahr - BGJ*) which replaces the first year of apprenticeship with an orientation to a variety of practical occupations in a general apprenticeship area and covers large aspects of work (i.e. industry, metallurgy, electrical engineering) rather than a specific trade. In 1986, only 4% of *Duale-System* students choose this option.[26]

c. Certificate: Upon completion of part-time vocational school the student receives a vocational schooling final certificate (*Abschlusszeugnis*). This certificate is required prior to taking the industrial craftsman final apprenticeship exam.

d. Follow-on: The vocational schooling final certificate (*Abschlusszeugnis*) is the equivalent of the 9 year *Hauptschule* final qualification (*Hauptschulabschluss*) for those that did not previously qualify, and opens up its follow-on options (see above - optional *Hauptschule Klasse 10* (Type A), vocational school, or a vocational extension school, evening *Realschule* or preparation courses for *Abendgymnasium*). It also is a prerequisite to taking the industrial or craftsman final apprenticeship exam.

2. ***In-plant Practical Vocational Training (BETRIEBLICHE)***. This portion of the overall training system provides the practical in-plant apprenticeship (*Ausbildungsdauer*) portion of the *Duale-System* of vocational training and aims to develop employment skills. It is provided on the worksite by experienced craftsmen (*Meisters*) or technicians (*Techiker*). It normally runs simultaneously with vocational schooling, but can also begin after full-time vocational schooling. Conducted and funded by private industry, it is regulated by the federal government rather than by individual *Laender* under the 1969 Vocational Training Act (*Berufsfbildungsgesetz*). The Federal Institute for Vocational Training in Berlin serves the coordinating function between federal, state, industry and worker unions in joint preparation of the ordinances and regula-

tions (*Ausbildungsordnungen*) for 380 different apprenticeships. The ordinances are then implemented by local craft chambers, industry councils and firms.

a. Entrance: After *Hauptschule* or higher schools may students choose to enter the *Duale-System* of part-time vocational training with a part or full-time job, or after higher vocational schooling they may enter an apprenticeship directly.

b. Curriculum: The in-plant training (3-4 days a week) consists of practical experiences of increasing difficulty leading to performance of actual jobs for customers. Each apprentice must have a training contract or Articles of Apprenticeship, which spell out trainee wages, training plan or content, examination requirements, holidays, etc. The contract between the firm (*Betrieb*) and trainee (*Auszubildender*) or apprentice (*Lehrling*) is approved by the local industry chamber based on guidelines in the 1969 Vocational Training Act.)

c. Certificate: In addition to completing vocational schooling and in-plant training, the apprentice must pass a final apprenticeship examination oral, written and practical (*Lehrabschlusspruefung*) to obtain the skilled worker or journeyman proficiency certificate (*Pruefungszeugnis*) administered by the local craft industry council or chamber - Chambers of Handicrafts (*Handwerkskammern*), Chambers of Industry and Commerce (*Industrieund Handelskammern*) or other competent body which confers a license or certification as a journeyman (*Geselle*), administrative assistant (*Gehilfe*) or skilled worker (*Facharbeiter*).

d. Follow-on: The vocational proficiency certificate (*Pruefungszeugnis*) allows the individual to apply to a company for a permanent position and employment contract. There is no guarantee that the company of apprenticeship will take the apprentice on as a full-time skilled worker unless there is an open place. After several years of employment and practical experience, the worker may take another examinations and receive the master craftsman (*Meister*) or advanced technician (*Techniker*) qualification. An individual with an initial vocational proficiency certificate (*Pruefungszeugnis*) can enter a vocational extension school (*Berufsaufbauschule*), specific advanced technical schools (*Fachschulen*), evening grammar school (*Abendgymnasium*), or the university preparatory school (*Kolleg*).

2. ***Full-time Vocational Training Classes 10 to 12 (BERUFSFACHSCHULE).*** The full-time vocational school in various specialties (e.g. business (*Handelsschule*), child care (*Berufsfachschule fuer Kinderpflege*), laboratory technician (*Technische Assistenten*), hotel management, hairdressing, etc.) was developed as an alternative to the part-time *Duale-System*. It prepares students for semi-professional work without an apprenticeship but with a final qualifying examination. Most of the industrial trades have retained the apprenticeship system. Note: The federal armed forces (*Bundeswehr*) run schools and workshops for military personnel of this sort to allow them to achieve basic school qualifications as well as vocational trades.

a. Entrance: Graduates of main (*Hauptschulabschuss*), or equivalent, or *Realschule* (*Mittlerer Bildungsabschluss*) middle or comprehensive school depending on the field.

b. Curriculum: The curriculum (30-35 hours a week) includes 1) general subjects (German, community studies, religion, sport, practical foreign language, practical mathematics) and 2) specific occupational or vocational subjects. The length varies from 1 to 3 years depending on the particular field.

c. Certificate: Upon satisfactory completion of a final examination the student receives a certificate (*Abschlusszeugnis*) that qualifies him or her as a skilled worker, assistant or journeyman. At the schools with the *Hauptschule* entry requirement the equivalent of a *Realschule* or the *Mittlerer Bildungsabschluss* intermediate school final certificate is also obtained.

d. Follow-on: Most graduates enter full-time employment but with the *Mittlerer Bildungsabschluss* qualification they can also enter specific advanced technical schools (*Fachschulen*), specialized secondary school (*Fachoberschule*), extension *Gymnasium*, evening grammar school (*Abendgymnasium*) or the university preparatory school (*Kolleg*).

3. ***Vocational Extension School Classes 10 to 12 (BERUFSAUFBAUSCHULE).*** The vocational extension school was designed as an advanced addition to the other forms of vocational school with more emphasis on and more advanced general studies and more advanced vocational studies in order to prepare students for more advanced jobs in technology, business, social work and agriculture or further schooling. It is offered part-time for students currently attending the *Duale-System* or full-time vocational school or in a full-time version for those that have completed vocational training. The number of students in these schools is declining as attendance at the lower levels of *Realschule* and *Gymnasium* prior to entering vocational training increases.

a. Entrance: Students must have the *Hauptschule* certificate and must have at least started on vocational training (can enter after completing a half-year of the part-time or full-time vocational school or after they have completed vocational training).

b. Curriculum: The curriculum (1200-1300 hours, or 1 year in a full-time version) includes more advanced 1) general studies (German, a foreign language, history and social studies, mathematics, physics, chemistry, economics and 2) vocational studies than offered in the part-time or full-time vocational schools (e.g. commercial/business, industrial/technical, sales, home economics, nursing, agriculture, social work). Unlike the regular vocational school its studies are heavily weighted 3 to 2 in favor of the general studies.

c. Certificate: All students take an exam that is more difficult than the exam administered at the end of the basic full-time vocational schools and receive the *Mittlerer Bildungsabschluss* if they don't already hold it.

d. Follow-on: May attend a specialized secondary school (*Fachoberschule*), technical school (*Fachschule*), evening grammar school (*Abendgymnasium*), or a university preparatory school (*Kolleg*).

4. ***Specialized or Technical Secondary School Classes 11 and 12 (FACHOBERSCHULE).*** Each technical secondary school specializes in a different area (engineering, home economics, business and management, social work, design, and navigation). They were designed to offer additional general and specialized vocational education to holders of the *Mittlerer Bildungsabschluss* from *Realschule* or vocational extension school. They provide a year of practical training in a particular specialty (similar to the *Duale-System* but more

advanced) for *Realschule* graduates and the opportunity to complete their compulsory 12 years of education.

a. Entrance: The *Mittlerer Bildungsabschluss* or equivalent is required for entrance. Those students who have completed previous vocational training are admitted at the 12th class level.

b. Curriculum: The curriculum is different for each of its 2 years. The first year includes: 1) general studies (8-12 hours a weeks) and 2) 4 days a week in practical training in a firm or school workshops. The second year of classroom work (30 hours a week) includes: 1) general studies such as German, social studies, mathematics, natural sciences, a foreign language, and physical education and 2) specialized theory in particular subject areas (i.e. engineering, home economics, business management, social work, design, and navigation) in a 3 to 2 ratio.

c. Certificate: The certificate for entrance to specialized colleges of technology or polytechnics (*Fachhochschulreife*) is awarded upon satisfactory completion of a final exam.

d. Follow-on: May attend a technical school (*Fachschule*), evening grammar school (*Abendgymnasium*), or a university preparatory school (*Kolleg*).

4. ***Technical Schools (FACHSCHULE).*** There is a wide variety of full and part-time technical schools that differ in specialty, admission requirements and length. All, however, are designed to offer advanced specialty training to adults (over 18 years of age) who have completed initial vocational training and have additional work experience. These schools lead to additional vocational proficiency qualifications or certificates at the level of master craftsman (*Meister*) or highly skilled technician (*Techniker*). The armed services Career Promotion Service includes various advanced craft training schools (*Bundeswehrfachschulen*).

a. Entrance: Students must have completed compulsory schooling with the *Hauptschulabschluss* or *Mittlerer Bildungsabschluss* and have completed vocational training or have relevant work experience.

b. Curriculum: The curricula are very specialized and vary in length from 1 to 3 years depending on course of study: e.g. chemical technology, machine technology, mining, textile industry, engineering, home economics, business administration, social work, design, data processing, navigation, and health services such as optician. Some general studies are included with a practical emphasis.

c. Certificate: Successful completion of final examinations results in a certificate (*Abschlusszeugnis*) the equivalent of the master craftsman (*Meister*) or highly skilled technician (*Techniker*).

d. Follow-on: It is not automatic but in some cases graduates are admitted to particular programs at polytechnics (*Fachhochschule*).

7. ***Academic Secondary/Grammar School Upper Level II Classes 11 to 13 (REFORMIERTE GYMNASIALE OBERSTUFE).*** In 1972, the upper levels of *Gymnasium* were reorganized and the classical/modern/science schools merged to allow for a college-like program with courses differentiated into 2 major (*Leistungs-*

kurse), 3 minor (*Grundkurse*), and additional subjects selected by the individual student each semester from a wide variety of compulsory and optional courses. There are three types of the upper level *Gymnasium*: 1) grammar (*Gymnasium*), 2) vocational/technical (*Berufliches Gymnasium* or *Fachgymnasium*), and 3) comprehensive (*Gesamtschule*). Under the 1970 reforms they are all quite similar with different emphases in the options areas (e.g. mechanical engineering, electrical engineering, etc.), although *Realschule* and vocational school graduates normally attend the latter two types or an extension version. All prepare for the *Arbitur* examination and grant the general university entrance qualification (*Allgemeine Hochschulreife*). The technical *Gymnasium* offer a double qualification after a vocational proficiency examination. The number of students attending the upper levels of *Gymnasium* has increased from 200,000 (1960) to 523,000 (1989) after the 1970 reform effort's increased emphasis on the *Arbitur* and university admission.[27]

a. Entrance: To enter the upper level *Gymnasium* the student must have experience in two foreign languages, hold the *Mittlerer Bildungsabschluss* or equivalent and a formal entrance qualification. Specifically the student may enter after *Hauptschule Klasse 10* secondary school graduation after grade 10 certificate (*Sekundarstufe I - Hauptschulabschluss nach Klasse 10* Type-B or *Realschule Mittlerer Bildungsabschluss* with special achievements and good marks in German, math and English or Satisfactory marks in German, math and English and 3 additional subjects), *Gymnasium* after grade 10 the specialized high school maturity leaving certificate (*Sekundarstufe I - Mittlerer Bildungsabschluss*) and formal entrance qualification, or vocational extension schools (*Berufsaufbauschulen*) or transitional extension *Gymnasium* after vocational schools.

b. Curriculum: The curricula is established within a framework of compulsory courses (*Pflichtbereich*) and options which allow a differentiated curricula (30 hours a week) based on student interests. The courses in the compulsory group include German, foreign language, music, art, philosophy, religion, social studies, economics, mathematics, physics, chemistry, biology, geography, and history (engineering courses at the technical *Gymnasium*). Other courses that can be selected as further options include psychology (*Psychologie*), sociology (*Sozialkunde*), legal affairs (*Rechtskunde*), geology (*Geologie*), astronomy (*Astronomie*), statistics (*Statistik*), technology (*Technologie*), data processing (*Datenverarbeitung*) and physical education (*Sport*). A student's course schedule is divided into two groups of courses depending on depth of study: 1) two specialized main or major courses (*Leistungskurse*) studied in depth (each 5-6 hours a week) normally selected from the compulsory list, one of which must be a foreign language, math or science, 2) 3 basic or minor courses (*Grundkurse*) studied in less depth (each 2-3 hours a week) one from each of three compulsory broad subject areas of German language/literature/art, math/science/technology, and social sciences and the remainder from the list of options (a total of 9-10 hours a week).

c. Certificate: In some cases students can leave after the 12th year and obtain the entrance to a polytechnic (*Fachhochschulreife*) after an additional year of apprenticeship or guided training. Most students complete 13 years and take the *Abitur* examination. Students must pass the final state oral and written examination (*Arbiturpruefung*) in their 2 main subjects and 2 additional minor subjects in order to receive the university maturity certificate with unlimited admission to higher education (*Arbitur* or *Allgemeine Hochschulreife*). The subjects must include one foreign language, German and a math/science. The examination is graded on a point scale 1-6 reduced from a total grade point (10-900 with 300 minimum to pass). The total grade points factor in

the *Arbitur* test scores with their course and interim examination grades during their final 2 years at school. Performance in the main courses is weighted more heavily than minors. Successful completion of the exam provides the certificate of unlimited admission to university (*Allgemeine Hochschulreife*) or a subject-restricted higher education qualification (*Fachgebundene Hochschulreife*) from vocational *Gymnasium*. Those at the technically oriented *Gymnasium* may also receive a vocational qualification certificate as a skilled worker after a vocational proficiency examination.

d. Follow-on: Pupils that leave the *Gymnasium* after class 12, or in class 13 without passing the *Arbitur* can obtain the polytechnic qualification (*Fachhochschulreife*) after completing an apprenticeship or one year of practical training. In fact, many pupils do enter apprenticeships (with a reduced time period of training) to obtain practical experience before entering higher education. Students that graduate with the *Arbitur* ideally can enroll in any department at any university or polytechnic institution. In fact, however, many overcrowded faculties (e.g. medicine) have been restricted (*Numerus Clausus*) and students must have a certain point total to qualify for entrance.

F. Second Way Education *(Zweiter Bildungsweig)*

There are a number of alternative ways for adults to obtain all certificates at later points in their life: 1) evening *Hauptschule* (7-9), *Realschule* (7-10) or *Gymnasium* (11-13) (*Abendhauptschule*, *Abendrealschulen*, *Abendgymnasium*), 2) university preparatory school or 6th form college (*Studienkolleg*), and 3) examination for admission of gifted persons in employment (aged 25-40). The evening *Hauptschule* was attended by small numbers but the evening *Realschule* by 9,800 students, *Abendgymnasium* (11-13) by 16,900 students, and the *Studienkolleg* by 11,700 students (mainly foreign) in 1986.[28]

a. Entrance: No special admission except over age 19 for *Hauptschule* or *Realschule*. For *Gymnasium* or *Studienkolleg*, students must be over 19 and there is usually an entrance examination. Those that do not have *Realschule Mittlerer Bildungsabschluss* or an equivalent must have completed vocational training or been employed for 3 years and then must attend a 6 month preparatory course. *Studienkolleg* students may not be employed and normally receive living loans or grants.

b. Curriculum: The curricula are modified forms of the day curriculum for each school. The *Studienkolleg* is a full-time preparatory school usually associated with a particular university with a curriculum lasting (3-4 years). There is a television/correspondence course version of the preparatory school (*Telekolleg*) in some states.

c. Certificate: The certificates are equivalent to those received in day schools.

d. Follow-on: Same as those with certificates achieved during the day.

G. Higher Education

1. ***Fine arts academies or institutes (KUNSTHOCHSCHULEN)***. These institutes are considered part of the higher education system. They are supervised by the

state and offer training for artists, those in the art field, and teachers of art and music.

a. Entrance: *Arbitur* is required for teaching of music or art and usually require the *Arbitur* and an artistic admission test, but in cases of exceptional talent the academic qualifications are waived.

b. Curriculum: The curriculum (6 to 8 semesters) covers a variety of subjects from art, dance, music, theater, interior design, painting, sculpture, film, and stage design. It is conducted in small groups or on an individualized level. Teachers of art and music attend these institutions before their practical instruction.

c. Certificate: Graduates receive a diploma and nomination as a master pupil (*Meisterschueler*) by passing the final art examination (*Kuenstlerische Reifepruefung*) or the concert examination for music (*Konzertexamen*).

d. Follow-on: Graduates can proceed on to employment, research level studies for a doctorate or the preparatory training period for teaching.

2. ***Specialized degree granting colleges or polytechnics (FACHHOCHSCHULEN).*** These degree granting institutions that provide specialized training at the higher education level in a wide variety of fields were raised to the status of higher education during the reform period of the late 60's. They normally admit students with 12 years of schooling and the *Fachhochschulreife* instead of the 13 years and *Arbitur*, take a maximum of 3 years to complete, and are oriented toward more practical studies which are highly valued by employers. In fact, it is often easier for a graduate of *Fachhochschulen* to find employment than a *Gymnasium* graduate because of the occupational emphasis of studies. Graduates may be admitted to university for further education. The number of students at *Fachhochschulen* increased from 89,500 (1970) to 312,500 (1986) and in 1988 represented 23.3% of all students at higher education as this institution rose in popularity.[29]

a. Entrance: Students are required to complete compulsory schooling and have the *Fachhochschulreife* certificate.

b. Curriculum: The curriculum usually lasts for 6 semesters and includes advanced work with a practical emphasis in a variety of fields including engineering, business and economics, energy technology, social work, computer and information sciences, design, navigation and health technology.

c. Certificate: Studies are normally concluded by state examinations or by the *Graduiert* degree or in some cases a diploma (although it is not equivalent to the university diploma.)

d. Follow-on: Upon completion of *Fachhochschule*, student can enter high-level management employment in a specialty area or transfer to a university department in their specialty (e.g. business to economics, social work to social science) without trouble and are exempted from one year of course work leading to a diploma.

3. ***Scholarly institutions (UNIVERSITAET and HOCHSCHULEN).*** There are a number of different types of scholarly institutions: traditional universities

(Universitaet), technical universities *(Technische Universitaet)*, comprehensive universities *(Gesamthochschule)*, open university at Hagen *(Fernuniversitaet)*, church or theology colleges *(Fachhochschulen)*, teacher colleges *(Paedagogische Hochschulen)*, and military universities *(Hochschulen der Bundeswehr)*. After 1970, the number of students at university increased rapidly -- 90% increase from 1970-1980. This resulted in enrollment restrictions *(Numerus Clausus)* in selected fields due to limited places and staff and concern there would not be enough employment opportunity. Still, it is the most popular type of higher education institution; in 1988, 75% of tertiary level students attended some type of university. Composition of attendance mirrors societal distribution.[30]

a. Entrance: *Arbitur* or equivalent provides entrance to university. There are no national tests or objective examinations for entrance. In 1972 an agreement among the *Laender* restricted admissions *(Numerus Clausus)* to certain courses of study *(Zulassungsbeschraenkungen)* where the number of applications exceed the number of required study places. This agreement was codified in the 1976 General Outline Law for University *(Hochschulrahmengesetz)* which established the federal-land Dortmund Central Office for the Allocation of Study Places *(ZVS)*. Medical, dental, and veterinary courses applications require a test *(Testergebnis)* that is used in conjunction with the *Arbitur* and bonuses from interviews, length of waiting time, and gainful employment with 10% reserved for hardship cases. For agricultural science, architecture, business management, biology, pharmacy and psychology the selection is based on 60% *Arbitur* mark, 40% waiting time with some special cases. In computer science, law and surveying students are guaranteed a place but it may not be at their preferred institution. Requires a certain grade point on the *Arbitur* examination. Places are allocated by 60% based on performance, with the rest based on time waiting, and hardship cases. In addition, graduates of the specialized higher education institutions *(Fachhochschule)* may enter in areas of their specialty.

b. Curriculum: The traditional university curricula (8-12 semesters) covers arts, sciences, social sciences, law, etc.) while the technical university concentrates on engineering subjects. The comprehensive university combines various institutions on one campus, such as an education college, polytechnic, business college and a traditional university. The open university operates through correspondence courses and regional study centers Theology colleges concentrate on philosophy and religion, teacher colleges prepare all teachers (see teacher preparation), and military universities provide general and military further education to military officers. Most students spend at least 10 semesters at university.

c. Certificate: Students present themselves for their examinations when they are ready, although a 1976 law sets a statute of limitations *(Regelstudienzeit)*. Studies terminate with a diploma (minimum of 8 semesters), masters of arts degree (interim degree for those who do not want to proceed with doctorate and where there is no state exam), doctorate (research degree requiring a dissertation and comprehensive examinations), *Habilitation* (second doctorate requiring a second dissertation and trial lectures required for professorship) or state licensing examination (teaching, law, public administration, medicine, pharmacy, dentistry). Many in the professions get both an academic degree and state certification.

d. Follow-on: Professions, civil service certification, professorship and jobs.

H. Continuing Education

1. ***Adult schools (Volkshochschule - VHS).*** Adult education centers are not part of the basic public education system and are not free of charge although approximately 50% of their costs are subsidized by the local districts or municipalities and some centers are funded by religious organizations or unions.[31] They offer primarily private education courses and seminars in leisure or hobby activities and other interests such as business practice, health, home economics, auto mechanics, languages, art and music, psychology, lay theater, computer science. In addition, they do offer some courses designed to complete basic education certificates although that is not their main purpose. In 1986 5.18 million places in such training were filled at the 856 centers.[32]

2. ***Private correspondence courses (Fernunterricht), courses, and seminars.*** A number of private educational businesses publish correspondence courses, conduct seminars and workshops and run schools. Correspondence course are popular, especially in the new *Laender*. These courses cover the same types of subjects as the *Volkschule*. In 1976 a federal law (*Fernunterrichtsschutz-gesetz*) established a federal inspection branch to provide for consumer protection by requiring the registering of all correspondence courses. The courses are reviewed and given a "quality" seal if they are considered adequate.

I. Other Schools

1. ***Special or remedial Schools for Physically & Mentally Handicapped (Sonder-schule).*** Since the 1970's reform special programs for physically, mentally, and psychologically handicapped children have been dramatically improved and are excellent. They have programs in the regular schools where possible although there are also special schools. These courses span *Kindergaerten* through the upper level vocational schools. The number of special children and number of *Sonderschule* have more than doubled since 1960 -- i.e. children 141,900 (1960) to 261,400 (1986) and schools 1,106 (1960) to 2,824 (1986). The

number of teachers, however, has increased by a factor of five 7,300 (1960) to 39,800 (1986) and the pupil-teacher ratio dropped correspondingly from 20.5 (1960) to 6.7 (1986).[33]

2. ***Private Schools***. In 1986, 5.8% of children at general schools and 6.7% at vocational schools attended private schools totaling over half a million children in 4,000 schools.[34] The three main types of private schools are: 1) religious (Catholic 73% and Protestant 11% in 1989)[35]; 2) Country home boarding schools (*Landerziehungsheime* which take children from city to a country residential setting and emphasize close relationships with teachers, 3) Waldorf schools which emphasize social relationships, parental involvement, reports vice grades, and the arts, and 4) international schools which cater to foreign populations in business, diplomatic corps, etc. If they adhere to state regulations, operate non-profit and use approved curriculum they are recognized by the state as substitute schools (*Ersatzschulen*), award certificates of equivalent value, and can receive a subsidy from the state that can be as high as 98%.[36]

IV. CURRENT ISSUES AND AGENDA

The Federal Republic of Germany faces a number of educational challenges: 1) adjustments required by reunification and European integration, 2) graduate unemployment linked to a recession, 3) university overcrowding, and 4) other issues associated with a changing international environment.

A. Unification

Germany is pouring huge transfer payments (financed by western tax hikes) into an eastern system plagued by massive unemployment, environmental degradation, and a failed economy. At the same time, it attempts to cope with integration pressures from other members in the European Community.

1. ***Reunification***. The East and West German people are fundamentally different in personality, outlook, life experience and economic situation. In fact, sensitive relationships between Westerners (*Wessies*) and Easterners (*Ossies*) are satirized weekly in a new television sitcom -- Motzki.[37] The prejudiced and chauvinistic lead actor is reminiscent of our own "Archie Bunker". He sees Turks, foreigners, women, and *Ossies* as second-class citizens -- lazy, incompetent, and work-shy. East Germans, on the other hand, often "see themselves as victims, demoralized by the loss of their personal security and self-esteem, which is made worse by an unwillingness to help themselves." [38] These opposing views are very real and result in major concern with fairness (vice discrimination) in student assessment and placement within the three educational tracks. Many East Germans favor the *Gesamtschule* over the *Hauptschule* for these very reasons.

In 1989, East German education based on communist ideas, was centralized, tolerant of lower standards, void of free research, and in disrepair. Marxism-Leninism had emphasized socialistic "indoctrination" (*Staatsbuergerkunde*) rather than individual growth and enlightenment. The task is therefore to: 1) create new state controlled educational systems and administrative organizations, 2) eliminate ideology departments and restore academic freedom, 3) inspect individual schools at all levels for required changes, 4) redevelop curricula to reflect democratic ideals, free-market economics, and a variety of modern languages, 5) raise research and instructional standards in order to equate credentials, 6) depoliticize and retrain or replace teachers who resist change, and 7) replace decaying buildings, libraries, and equipment.

2. ***European integration***. Educational cooperation is essential as the European Community (EC) and European Free Trading Area (EFTA) move toward open borders and free trade. The success of the international market will depend on acquisition of European credentials through cross-border training experiences. Germany is adjusting by increasing emphasis on foreign languages, including European and international studies at all levels, promoting university exchange programs, and credentialling across borders. A related issue under discussion is whether foreign teachers should be permitted to instruct in Germany. Appendix 5 describes a variety of EC educational programs for promoting European integration.

B. University Overcrowding

Another major issue in German education concerns university overcrowding and free choice of a major. The current system was planned, built and staffed for 850,000 students but it enrolls 1.5 million (1989)[39]. This large number is the direct result of 1960-70's reforms aimed at increasing the number of students achieving *Arbitur*. Some blame the overcrowding on a "student bulge" (*Studentenberg*) but in reality excessive time spent in study greatly contributes to the problem. Students receive generous living assistance (tuition is free) while attending school and present themselves for examination when ready. The average student spends 14 semesters on a university degree requiring 8-12 semesters and 9 semesters on a *Fachhochschule* degree requiring 6-8 semesters.[40]

Many universities have increased class size (e.g. some large economics classes hold 1500 students) and restricted access to certain curricula (*Numerus Clausus*) rather than expanding their facilities. Although student places are available in the five new *Laender* there is little movement. Students fear degrees from the east will not be honored with equal weight. Although there has been some additional funding for expansion, a national higher education plan does not exist. In its absence, some have called for limited privatization and fees for those institutions in highest demand. Notes: *Diplom* or *Magister of Artium* graduates are on average 28.0 years old after 13 years at *Gymnasium*, a 12-15 month military obligation and time spent in university study. The current faculty is aging and without replacements – 50% will retire by 2005 and 80% by 2015.[41]

C. Graduate Unemployment

Germany is officially in recession -- western unemployment (1993) is approximately 7% and eastern 17%. Gross Domestic Product (GDP) increased by only .8% (1992) compared to 4.9% (1990), and is predicted to decrease in 1993.[42] Apprenticeship places are still available, although permanent jobs are less readily so. University graduates also have difficulty finding jobs and the qualifications of those who seek to enter the teaching profession are mismatched with requirements. Specialized vocational teachers are in demand, but most graduates are academically oriented [e.g. 54.5% trained for *Hauptschule*

or *Realschule*, 4.9% for vocational schools].[43] Students are remaining at university for longer periods as a result of the sluggish labor market. However, as taxes and expenditures increase (e.g. unemployment and eastern *Laender* transfer payments), conflict will arise over allocating funds between unemployment/retraining and student aid/university funding.

D. Additional Issues in a Changing World

A variety of additional issues relate to adaptation, innovation, and currency in a changing world. Over the last 10-15 years many mothers have joined the workforce, causing concern over a scarcity of pre-school and whole day school places. Critics continue to highlight secondary school inequalities (especially *Hauptschule*) and lack of transfer flexibility. Comprehensive schools, however, remain controversial -- advocates promote complete conversion of the tripartite system while detractors fear an associated breakdown of standards. Time in secondary school is also debated, with calls for reduction from 13 to 12 years. In addition, more emphasis is placed on equal representation of females in higher education and non-traditional apprenticeships.

As foreign children make up a greater percentage of primary and secondary school populations, and also reflect high drop-out rates, requirements for special attention increase (e.g. additional instruction and classes in the mother tongue). Meanwhile, additional opportunity for gifted pupils becomes a more pressing issue. In response to demands from the complex workplace, maximum emphasis is placed on continual worker training as well as on state-of-the-art training technology (i.e. training aids, equipment, and subject matter). Curriculum revisions emphasize active and creative learning and incorporate highly visible subjects such as the environment, drug use and AIDS.

E. Agenda for the Future

As Germany faces the future, its educational agenda is multi-faceted: 1) integrate and reeducate citizens of the five new *Laender*, 2) accelerate adjustment to the European Community, 3) reduce elitism in tracking while

maintaining quality and achievement levels, 4) expand all types of higher education, and 5) foster strong governmental, parental and industrial support.

V. LESSONS AND APPLICATIONS

Many experts view Germany's educational system as an excellent model for today's modern, high-skill/high-wage society -- although they are careful to emphasize its supportive cultural environment. This section highlights the system's strengths and applies them to U.S. educational reform.

A. German Strengths

1. ***Variety of school tracks and choices.*** The German school system focuses on preparing all students for gainful employment, and allowing them to concentrate on areas of interest. It offers three secondary school tracks each with a special emphasis (vocational, technical, and professional) with assignment based on aptitude, ability tests and parental/student preference. In particular, the vocational track *Duale-System* offers many advantages to students who would otherwise drop out as well as to those who pursue it along with or after other educational endeavors (see below). Although improper placement can destroy educational equity, good placement allows pupils to learn at a pace that suits their abilities. With increased weight on parental preference, built-in transfer possibilities for "late-bloomers", and second way opportunities, and advanced schooling, educational and career changes are continually possible. There are no dead ends.

German *Duale-System* of Apprenticeship

The *Duale-System* of apprenticeship links work experience and academic learning through adult mentorship and early learning about the workplace. Apprenticeship provides an alternative learning environment for those who do not perform well in the classroom. It also injects a large dose of adult-world reality into secondary education. Youth are motivated because they are treated like adults and they begin to see the link between learning facts and earning a living. An integrated academic curriculum helps to develop higher order thinking and problem-solving skills. Teenagers are placed in close contact with a range of adult mentors and learn about workplace interactions (and can model them). Strong business involvement ensures that graduates' skills match market needs, and employers readily hire nationally certified technicians. As a result, apprentices [age 19] have strong academic and vocational skills and move directly into primary-labor markets with a valued identity (journeyman) rather than into low-skill, low-wage secondary-labor markets with no relationship to schooling [Wendy's]. The result is a painless transition to the world of work.

2. ***Practical curriculum***. The curriculum at all levels emphasizes practical training, rigorous academics, creativity and active learning in addition to cognitive development. It also covers current issues such as the environment, AIDS and world-wide cooperation and change. Extracurricular activities are offered by private organizations and are rarely related to school activities.

3. ***Variety of certifications***. The German system provides a wide variety of assessment and certification vehicles which allow exit and reentry at numerous points. Examinations include the following standardized comprehensives: 1) high school *Arbitur* (state controlled), 2) theoretical and practical skill (craft and industry chambers controlled within federal guidelines), 3) professional (state controlled), and 4) higher academic (university controlled). These result in: 1) formal 9th, 10th and 13th grade level academic leaving certificates, 2) numerous vocational and technical skill certificates, 3) professional licenses, and 4) advanced academic degrees.

4. ***Access***. Wide access to basic training, retraining and college-level instruction exists in Germany as a result of governmental and industrial involvement:

a. **Government coordination**. The German government carefully coordinates its unemployment and training systems. "One-stop-shopping" labor centers monitor labor needs, provide counseling, aptitude testing, placement, basic education, retraining, and liberal unemployment compensation. Long-term alliances between government, education and industry guarantee lifetime retraining and generous unemployment benefits. In addition, the government funds university tuition costs for anyone who passes the *Arbitur*, and provides generous living assistance or loans during the period of study.

b. **Industrial standards and funding**. The German educational system is based on the country's commitment to high productivity and high wages. A strong link exists between education and industry regarding employment needs and requirements. Tight labor markets, strong unions, and legislation provide strong incentives for employers to invest in lifetime retraining. Industry must use 2.3% of payroll for training or pay a tax to a government training

pool.[44] National industry councils set skill standards, certify training programs and assess performance for licensing.

5. ***Extended school year***. Although reduced in recent years to accommodate the 5-day workweek, most German students still spend 212 days in school each year.[45]

6. ***Pre-schooling***. Quality pre-schools provide young children (ages 3-5) with social interaction and adult nurturing. Generous subsidies make it available to all, although there is increasing concern with scarcity of places.

7. ***High quality teachers***. German teachers undergo rigorous training. Most obtain a 6-year double-major and then complete 2 years of intensive teacher training. Teachers are highly valued and receive significant pay, status, and benefits as state civil servants.

8. ***Public concern and support***. Although diminished in recent years, Germany has a long history of governmental educational planning, as well as significant public and private resources and public interest and support.

B. Applications for U.S. Educational Reform

First, is U.S. educational reform really necessary? Appendix 23 lists some disturbing facts that indicate the system is indeed lacking in many areas. The status quo is clearly an unsatisfactory option. In addition, many critics insist that the U.S. is rapidly losing its competitive edge -- pointing to slow growth in productivity and GNP, low math and science achievement scores, and low wages as indicators of A Nation at Risk. They view human capital as key to economic success and blame an educational system which fails to develop a creative, informed and high-skilled workforce.

Therefore, assuming that education is at least part of the problem -- ***should we use the German system as a model for U.S. education reform?*** The answer is clearly -- yes. In that light, the following nine recommendations borrow from the strengths of the German system as identified in the previous section.

1. ***Increase alternative tracks and choices***. Although a controversial subject, the U.S. should expand public school choice through special emphasis magnet schools or optional curriculum tracks. In particular, a youth apprenticeship path would meet the needs of those students who see no relevance in traditional schooling (see below). Alternative opportunities could improve motivation and self-esteem by allowing students to excel in areas of interest at their own ability level. Choices based on ability and special emphasis could be balanced with transfer flexibility for "late bloomers". Protection against discrimination based on race, religion, and income could be guaranteed by law.

American Youth Apprenticeship

There is currently no institution to bridge the school-to-work gap or provide a clear vocational path for the 50-60% of our youth that do not go to college.[46] Most youths fail to see any relationship between learning and working and "flounder" from age 18-22 in the secondary labor market of low-paid, unskilled jobs. U.S. business, labor, civic and educational leaders need to develop a national Youth Apprenticeship Program for our "forgotten half" of non-college-bound pupils. It should include early training about the world of work in general, link specific occupational skill training and work experience with academic learning, and guarantee skilled jobs upon graduation. Students would each spend 3 years as an apprentice starting in 10th grade. They would learn a specific occupational skill as well as the workplace competencies called for by SCANS (see Appendix 24). Adult workers would serve as role models, mentors and instructors. High school and community college academics would complement worksite training. An apprenticeship system would expand our supply of well-trained workers, narrow earning differentials, and create incentives to stay in school and away from crime and drugs. It would provide a better school-to-work transition and is probably the only way to reduce our high school dropout rate.

2. ***Reform the curriculum***. The typical U.S. curriculum could be improved with additional emphasis on: 1) practical learning experiences for all, 2) academic rigor, 3) creativity, 4) and active learning. It should also emphasize a greater world-view of global interdependence, change, and environmental responsibility. Extracurricular activities should be decreased or moved outside of school hours to allow for greater concentration and intensity of studies.

3. ***Improve assessment and certification***. The U.S. should develop a system of diverse yet standardized comprehensive oral/written examinations and associated academic and skill certifications, at various levels. It should offer a world-class level of basic academic certification at age 16, as well as a wide variety of skill certifications linked to work-place qualifications. Appendix 25 displays a sample system designed by Ira Magaziner's Commission on the Skills of the American Workforce. These national standards would be useful in evaluating performance and holding teachers, schools and pupils accountable.

In addition, they would increase upward mobility by facilitating movement in and out of the system to attain additional educational qualifications at various points in life.

4. ***Improve access***. Access to the U.S. educational system could be improved through greater governmental and industrial involvement:

a. **Government coordination**. The U.S. employment and training systems are uncoordinated. To correct the situation, the government should expand its 600 unemployment offices into comprehensive Skill Centers -- similar to Germany's "one-stop-shopping" centers. The centers would distribute federal training assistance and unemployment compensation, certify local vocational training programs, assist in training and job placement, and coordinate with Private Industry Councils (see below). In addition, we should establish a National Service Trust Fund (civilian GI bill) to ensure a college education is accessible to all. Payback could be made as a small percentage of income over time, or by community service as teachers, health-care workers, etc.

b. **Industrial involvement**. The U.S. should strengthen the relationship between education and industry. At present, front-line workers receive very little training. Government should provide an incentive by requiring corporations to invest 1.5% of payroll in basic education, advanced skill training, or retraining or contribute that amount to a National Training Fund. In addition, existing workforce skills fail to match the requirements of modern industry. To correct this situation, Private Industry Councils should be more involved in establishing and certifying national skill standards.

5. ***Increase time at school***. The U.S. should lengthen its school year from an average of 180 to 210 days and require part-time attendance in co-op programs through age 18.[47]

6. ***Improve pre-schooling***. An active and comprehensive pre-school program is necessary for the increasing number of families in which both parents (or single head of household) work. Early pre-school preparation is also crucial for leveling the entry point of disadvantaged pupils. The U.S. should fully fund Head Start and Women, Infants and Children (WIC) assistance and expand

innovative ventures such as Arkansas' Home Instructional Program for Preschool youngsters (HIPPY).

7. ***Improve teacher quality***. The U.S. should increase the rigor and practical aspects of its teacher training. In addition, talented and specialized military technicians should be permitted to enter the teaching profession as a second career -- but only after careful practical instruction in alternative certification programs.

8. ***Develop public consensus on long-term vision***. Finally, the U.S. should marshall public support for Goals 2000: Educate America and apply necessary resources. It can learn from Germany's 1960-70's experience that it must also be prepared to manage unexpected side effects.

Before concluding, it is important to recognize that the above proposals may not be easy to implement. Germany's culture and environment are very supportive of the "model" system, however American culture is substantially different, i.e.:

> Germany values the blue-collar worker, education for jobs, disciplined educational tracking, public-private cooperation, and a long-term perspective.
>
> America, on the other hand, values the upwardly mobile professional, education for personal development and citizenship, free choice, public-private separation, and a short-term, competitive perspective.

Patience, flexibility and accommodation will be key "watchwords" as the U.S. seeks to implement realistic reform.

E. Concluding Thoughts

As the U.S. seeks to improve its productivity and competitiveness in a global economy, the "West" German educational system provides a good model. In fact, our leaders (e.g. George Bush, Bill and Hillary Clinton, Ira Magaziner, Robert Reich) have been studying the system for some time. As a result, the President's current agenda for solving America's economic and educational difficulties is based heavily on German ideas -- e.g. pre-school, skill standards, apprenticeship, standardized testing, multiple credentialling levels, comprehensive skill centers, lifetime learning, and university access.

Germany's Standing Conference of Ministers
100th Plenary Session Education Goals (1964)

1) Raise the overall level of training for young people through increasing and improving all kinds of schooling.
2) Increase the number of youngsters completing higher levels of schooling.
3) Train every individual to the highest degree of his or her capacity for achievement.
4) Offer training possibilities better adapted to individual capacity by improving measures for placing pupils in appropriate courses.
5) Increase transferability between all existing schools (i.e. horizontally rather than vertically structured organization).
6) Create new forms of secondary education.

Chancellor Brandt's SPD/FDP
Educational Report Educational Goals (1970)

1) Reorganize pre-schools.
2) Introduce comprehensive schools.
3) Replace teacher training for specific types of schools by a graduated course for everyone.
4) Ensure half of all pupils within a specified age-group attain university entrance qualification by 1980.

Note: The Commission for Educational Planning presented a Comprehensive Education Plan in 1973. It was renewed in 1977 but not in 1982. By that time public opinion had "turned" against reform and the social and political problems arising from it.

Appendix 1: German Educational Reform Goals

Source: Based on information from *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuehr, (pp. 16, 21).

Legal Foundations

* Articles 1 through 19 enumerate basic rights of citizens in the democratic federal welfare state. They emphasize the state's responsibility for removing social and educational disadvantages in order to guarantee the highest degree of equal opportunity.

* Article 5 ensures intellectual freedom while requiring civil servant loyalty to the Constitution.

* Article 6 states that parents have the natural right and overriding responsibility for raising their children.

* Article 7 assigns responsibility for educational objectives, curricula, organization, supervision and inspection, and professional teaching personnel to the states (*Laender*). It provides for private schools subject to state inspection and for religion as a regular subject in public schools. Parents, however, retain the right to decide if their children receive such instruction.

* Articles 11 and 12 guarantee Germans the right to freedom of movement and free choice of training and employment throughout Germany.

* Article 21 permits political parties to participate in the formulation of public opinion on governmental policies.

* Article 30 identifies education as a specific STATE (*Laend*) vice FEDERAL (*Bund*) responsibility.

* Article 74 assigns responsibility for non-school, in-plant vocational training, academic research, pupil aid, and regulation of state civil servant salaries to the federal government. [Note: The 1969 Vocational Training Act (*Berufsbildungsgesetz*) and the 1971 Law on Providing Student University and Vocational Aid - Federal Training Assistance Law (*Bundesausbildungsfoerderungsgesetz - BAfoeG*) are implementing legislation.]

* Article 75 (1969 Amendment) assigns responsibility for outlining general university standards and principles to the federal government. [Note: The 1976 General Higher Education or University Outline Law (*Hochschulrahmengesetz*) is implementing legislation.]

* Article 91a (1969 Amendment) permits the federal government to jointly plan and finance 50% of the construction costs for expanding higher education facilities. [Note: The 1969 Law on Promoting University Construction (*Hochschulbaufoerderungsgesetz*) is implementing legislation.]

* Article 91b (1969 Amendment) permits the federal government to assume greater joint responsibility in promoting academic research and to participate jointly in limited educational planning at all levels. [Note: The 1971 Law on Expanding University Statistics is implementing legislation.]

Appendix 2: German Basic Law of 1949 (Constitution) - Educational Articles and Amendments

Sources: Based on information from *The Educational System of the Federal Republic of Germany* (HEW Publication No. (OE) 76-19127), 1975, by P.S. Bodenman, (p. 5), Washington, DC: U.S. Government Printing Office; *Freedom of Teaching and Research: Higher Education Institutions in the Federal Republic of Germany* (BW 1990 Nr. 11/12e), 1990, by the Federal Ministry of Education and Science, (p. 19), Bonn: Inter Nationes; *The School System in the Federal Republic of Germany* (BW 1991 Nr. 3/4e), 1991, by the Federal Ministry of Education and Science, (pp. 6-7, 10, 19), Bonn: Inter Nationes; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuehr, (p. 33), Bonn: Inter Nationes; *Vocational Training in the Federal Republic of Germany* (Catalogue No. HX-59-90-233-EN-C), 1991, by J. Muench, (p. 11), Luxembourg: Office for Official Publications of the European Communities; *Federal Republic of Germany: A Country Study* (DA Pam 550-173), 1982, by R.F. Nyrop (Ed.), (p. 247), Washington, DC: U.S. Government Printing Office; "West Germany" in *World Education Encyclopedia: Vol. 1. Major Countries Algeria-Hungary*, 1988, by V.D. Rust, G.T. Kurian (Ed.), (p. 447), NY, NY: Facts on File Publications.

PARTY VIEWS

Christian Social Union-Christian Socialists (CSU) and Christian Democratic Union-Christian Democrats (CDU):

The CSU and CDU are conservative parties whose views are characterized by the following phrase: "[Schools] should cater to the varying talents and skills and the varying achievement capacities of human beings." They support state control vice federal involvement in schools and discourage creation of new federal planning committees. They insist on a vertical, multi-structured system that offers essentially equivalent courses differentiated by ability and schools that each have a special structure and purpose (e.g. *Hauptschule*, *Realschule*, *Gymnasium*, *Sonderschule*, *Berufsschule*). They reject all leveling and integrated systems such as *Gesamtschule*. They believe in special assistance for talented children and for those with deficient ability, learning or behavioral problems, e.g. children of foreign workers. They defend early selection based on ability and parental desires rather than placement through diagnostic mixed-ability classes. They call for decreasing the time spent for *Arbitur* or equivalent from 13 to 12 years. They promote improvement of handicapped schools with reintegration into regular schools when possible.

Free Democratic Party-Free Democrats (FDP):

The FDP is an independent party whose views are characterized by the following two phrases: "Free unfolding of personality through a wide range of educational opportunities and choices" and "Anyone who rejects differences in terms of individual ability makes excessive demands on some children and limits the achievement of others." They approve of federal involvement in education. They advocate fair and just competition between different types of schools and different types of pupils as a means of providing plurality and fulfilling parental desires for their children. They view comprehensive schools as a good addition but not the only alternative. They call for competition from independent private schools and advocate the formation of private colleges and universities. They believe in special assistance for talented children and early assistance for deprived children to compensate for social disadvantages. They encourage all-day schools. They promote improvement of handicapped schools with reintegration into regular schools when possible.

Social Democratic Party of Germany-Social Democrats (SPD):

The SPD is a liberal party whose views are characterized by the following phrase: "A shared basic education for all is the only way to ensure equal opportunity." They support state control vice federal involvement in education but encourage voluntary planning commissions such as an "Education 2000" group. They insist on a horizontal system that integrates vocational and academic education into a comprehensive system with the goal of achieving a vocational qualification and academic university admission qualification simultaneously. They advocate expansion of comprehensive schools as the only way of providing equivalent vocational and academic education and ensuring equal opportunity. They call for a wide variety of higher education alternatives and increased access to university to supplement a shared basic education. They believe in special assistance for the disadvantaged, e.g. children of foreign workers, with emphasis on those who leave main schools without a certificate. They defend selection based on mixed ability level orientation or diagnostic 5-6th grade classes. They support a common number of middle school years -- i.e. extension of full-time compulsory school from grade 9 to grade 10. They promote improvement of handicapped schools with reintegration into regular schools when possible.

Alliance 90-Greens:

The Greens are an independent environmental party whose views are characterized by the following phrase: "The current educational system promotes conformist citizens vs. free and forward-thinking individuals." They call for the certification of alternative schools on an equal basis with state schools. They advocate no boundary-schools without limits (i.e. school vs. free time). They defend common classes for all up to the 10th year. They promote education in social democratic behavior, and ecological awareness. They criticize the overwhelming pressure to achieve and stress in schools.

Party of Democratic Socialism-Communists (PDS):

Communist

Appendix 3: Political Party History and Views on Education

Sources: Based on information from *The School System in the Federal Republic of Germany* (BW 1991 Nr. 3/4c), 1991, by the Federal Ministry of Education and Science, (p. 7), Bonn: Inter Nationes; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuchr, (pp. 43-44), Bonn: Inter Nationes.

HISTORY

1949-1966: CDU/CSU/FDP Conservative Coalition

Major emphasis: Economic reconstruction, recovery from war trauma.

1966-1969: CDU/CSU/FDP/SDP Grand Coalition

Major emphasis: Beginnings of educational reform.

1969-1982: SPD/FDP Liberal Coalition

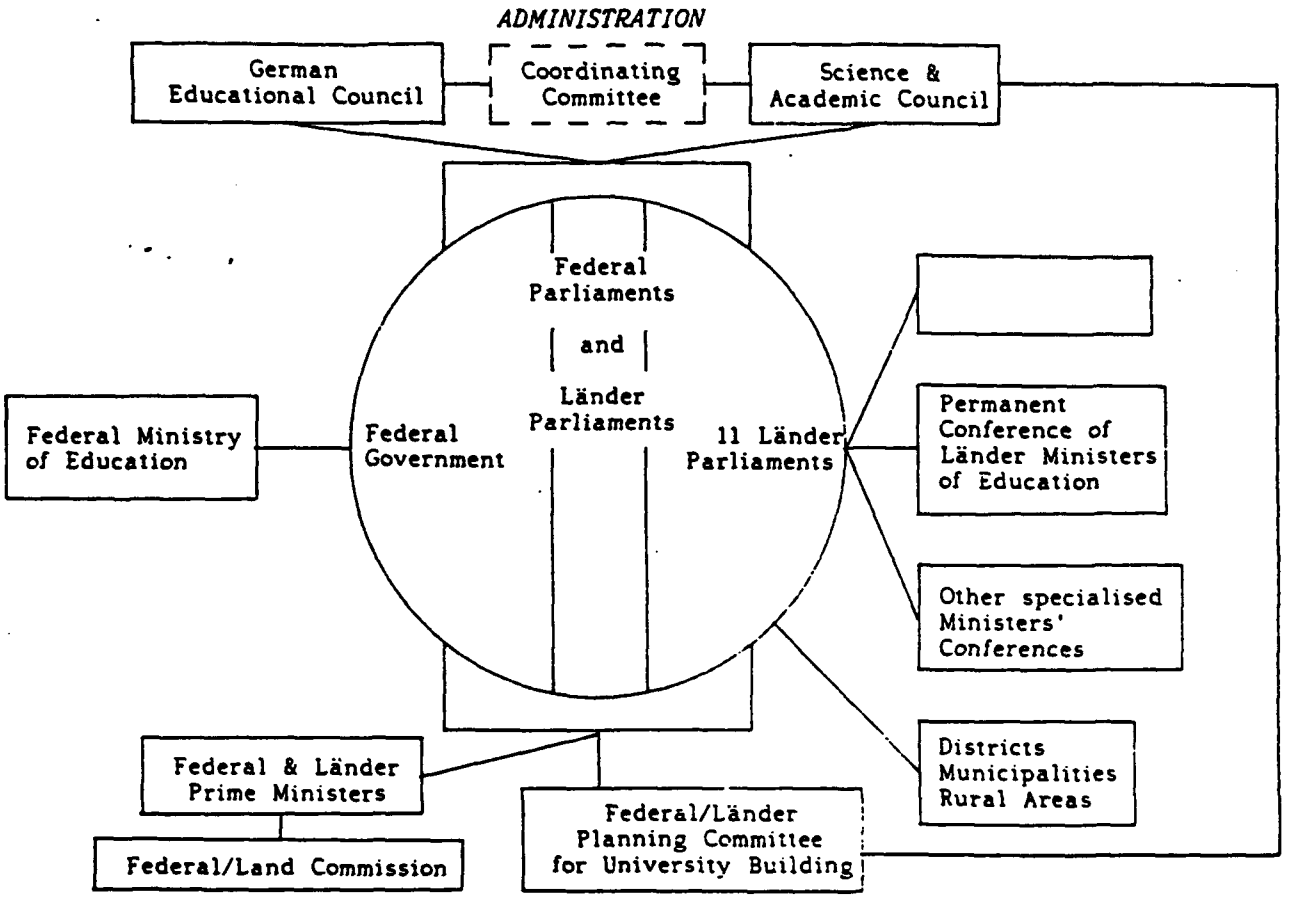
Major emphasis: Internal affairs, major educational reforms and planning.

1982-Pres: CDU/CSU/FDP Conservative Coalition

Major emphasis: Economic crisis, reunification, minimal educational interest.

Appendix 3 (cont.): Political Party History and Views on Education

Sources: Based on information from "Federal Republic of Germany" in *International Handbook of Education Systems: Vol. 1. Europe and Canada*, 1983, by B. Holmes (Ed.), (p. 232), New York: John Wiley & Sons; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuchs, (pp. 194-5), Bonn: Inter Nationes.



Appendix 4: Diagram of Administrative Organization

Source: "Federal Republic of Germany" in B. Holmes (Ed.), 1983, *International Handbook of Education Systems: Volume 1. Europe and Canada* (p. 247). New York: John Wiley & Sons.

1. Advisory Commissions/Committees.

In the tradition of the large Councils created by the Federal Parliament (e.g. BLK), smaller advisory commissions exist at both the federal and state levels. They consist of leading experts, deal with specific subjects, and are usually temporary. For example, the Federal Ministry backed a Discussion Group on Educational Policy (*Gespraechskreis Bildungsplanung*) from 1977 to 1987. It identified weak links between technology and education and promoted new technology pilot programs in schools and universities. Other groups are supported by political parties (e.g. SPD's "Education 2000") and still others exist only in particular states (e.g. "Child's Advocate" commission).

2. Research Centers.

The three national research centers are the German Institute for International Educational Research (*Deutsches Institut fuer Internationale Paedagogische Forschung* - 1952, Frankfurt), the Max Planck Institute for Educational Research (*Max Planck-Institut fuer Bildungsforschung* - 1963, West Berlin), and the Federal Institute for Research into Vocational Training (*Bundesinstitut fuer Berufsbildungsforschung* - 1970, Berlin - now the Federal Institute for Vocational Training). The West Berlin Educational Center is one of many smaller, regional centers that conduct school related research for use in developing curriculum and improving teaching methods. Colleges of education (*Paedagogische Hochschulen*) as well as industrial and religious centers, also pursue psychological, sociological, and pedagogical research.

Researchers investigate such diverse topics as education in a changing society, multi-culturalism, links with the workplace, learning processes, evaluation methods, vocational and new instructional technologies, human development, artistic learning, education of special populations (e.g. women, foreigners, gifted), and teacher transition to other employment. They distribute findings through a variety of publications, conferences, and meetings.

During the 1970 reform period, educational research efforts increased greatly. It is interesting to note, however, that although the number of institutes is still substantial, annual public funding is limited (70 million DM) -- about equal to the "budget of a medium sized hospital".

3. International Organizations.

German researchers and education officials are influenced by international discussions with representatives of the European Community (EC), Organization for Economic Cooperation and Development (OECD), and United Nations Educational, Scientific and Cultural Organization (UNESCO). In fact, ministers attending the 1961 OECD Conference included ideas in their "Economic Growth and Expansion of the Educational System" report, that stimulated secondary and university reform through national planning.

The EC, in particular, sponsors a variety of educational programs designed to support the European integration process: PETRA (promotes post-compulsory occupational training through a variety of European experiences), YOUTH FOR EUROPE (promotes non-educational, youth exchange experiences), LINGUA (promotes acquisition of foreign languages abroad), DELTA (promotes elaboration and dissemination of modern learning technologies in vocational and specialized trade training), FORCE (promotes investment and innovation in medium-sized advanced training institutions), COMETT (promotes cooperation between higher education and industry in new technologies through "incubator" centers), ERASMUS (promotes mobility on the part of students and cooperation between higher education institutions), EUROTECNET (promotes retraining and creation of jobs in the new information technologies), IRIS (promotes women's advanced vocational training opportunities within a

Appendix 5: Academic, Social, International & Political Organizations

Sources: Based on information from *Freedom of Teaching and Research: Higher Education Institutions in the Federal Republic of Germany* (BW 1990 Nr. 11/12e), 1990, by the Federal Ministry of Education and Science, (p. 23), Bonn: Inter Nationes; *Further Education in Germany: Qualification in a Changing World* (BW 1991 Nr. 11/12e), 1991, by the Federal Ministry of Education and Science, (pp. 19-21), Bonn: Inter Nationes; *The School System in the Federal Republic of Germany* (BW 1991 Nr. 3/4e), 1991, by the Federal Ministry of Education and Science, (pp. 10, 20), Bonn: Inter Nationes; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuehr, (pp. 13, 21-26, 41, 45-46, 52-60), Bonn: Inter Nationes.

European network, NOW (promotes measures to ease integration of women into the employment market such as child care), EUROFORM (promotes retraining tailored to new occupational needs in the European community), and HORIZON (promotes cross-border learning experiences and integration of handicapped and other disadvantaged persons).

4. Churches.

The Basic Law separates church and state -- but religion is a regular school subject and churches are permitted to inspect its teaching. Concordats (Catholic) and treaties (Protestant) serve to regulate church involvement. The churches also control private religious schools and theological colleges.

5. Teacher and Trade Unions.

Over 400,000 of Germany's 500,000 general and vocational teachers belong to unions. Three major unions represent their interests: German Teacher's Association (*Deutscher Lehrerverband* - 114,000), Education and Science Union (*Gewerkschaft Erziehung und Wissenschaft* - 189,000), and Education and Training Association (*Verband Bildung und Erziehung* - 100,000). The associations play an active role in shaping educational policy through publications, congresses, meetings, and in-service training for their members. In addition, the major trade unions, i.e. German Trade Union Federation (DGB) and Congress of Industry and Trade, are vocal advocates of both basic and vocational training issues. For example, the DGB actively supports all-day comprehensive schools and calls for full-time compulsory school attendance through grade 10.

6. Craft Associations and Chambers of Commerce.

Industry has a dramatic impact on the dual system and other vocational programs through its craft associations or Chambers of Handicrafts (*Handwerkskammern*), Chambers of Industry and Commerce (*Industrieund Handelskammern*) and individual businesses. National Industry Councils establish skill standards, approve work-site training programs, certify vocational instructors (*Meisters*) and assess performance prior to licensing.

7. Political Parties.

The five political parties are listed in Appendix A-2, each with particular views on education. They are permitted by the Basic Law to influence public policy and do so through Parliamentary debate. The debate reached its height in the 1960-70's. After the country experienced some unpleasant side-effects from the reforms, a more conservative mood settled in.

8. Parent Councils.

All parents of children in a particular class choose a parents' council and these together form the school parents' council. Delegates are then chosen for district and regional level councils. Leaders and interested parents form "action groups" at the state level to influence education policy. In the 1970's, groups mobilized on both sides when orientation level classes and comprehensive schools were first being proposed -- in some cases blocking governmental action.

9. Student Councils.

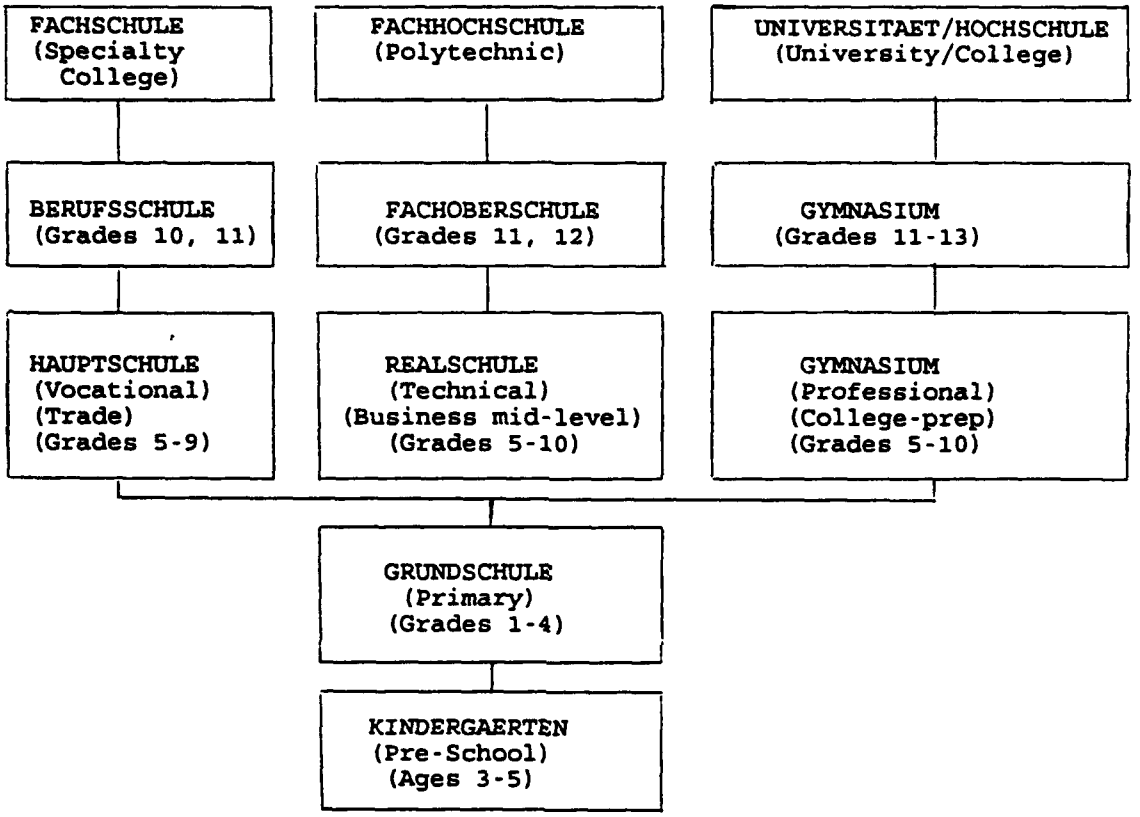
As liberal ideas involving emancipation of the child's individual personality increased, student rights expanded. Beginning in 1973, students elected representatives and formed student bodies (*Schuelervertretung*).

Overview: Budget (in DM billions)						
		1970	1975	1980	1985	1990
Total educational budget expenditures		27.8	56.8	77.1	85.3	102.8
% of total domestic federal budget		14.2%	16.0%	15.5%	14.5%	13.8%
% of total Gross National Product		4.1%	5.5%	5.2%	4.7%	4.3%
	Elementary sector	.9	2.4	3.6	4.3	6.0
	Schools	17.1	32.8	43.8	46.8	52.7
	Higher education institutions	6.9	13.6	17.8	21.4	30.3
	Further education/training	.6	1.1	2.3	3.0	3.2
	Promotion measures	1.0	4.4	6.2	5.3	5.2
	Total research promotion	1.3	2.6	3.6	4.5	5.4
Total educational budget expenditures		27.8	56.8	77.1	85.3	102.8
	% federal	8.3%	9.7%	8.8%	8.1%	8.2%
	% state	68.1%	69.6%	72.4%	75.1%	75.2%
	% local	23.6%	20.6%	18.9%	16.8%	16.6%

Appendix 6: Educational Financing

Sources: Based on data from *Basic and Structural Data: Education Statistics for the Federal Republic of Germany 1992/1993*, November 1992, by the Federal Ministry of Education and Science (pp. 12-13, 136-137), Bonn: Author; *Federal Republic of Germany* by J. Naumann & H. Kohler in *The Encyclopedia of Comparative Education and National Systems of Education*, 1988, by T.N. Postlethwaite (Ed.), (p. 298), New York: Pergamon Press; and *Report on the Development of Education in the Federal Republic of Germany 1990-1992*, 1992, by the Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Laender* in the Federal Republic of Germany, (p. 126), Bonn: Author.

GERMAN EDUCATIONAL FRAMEWORK



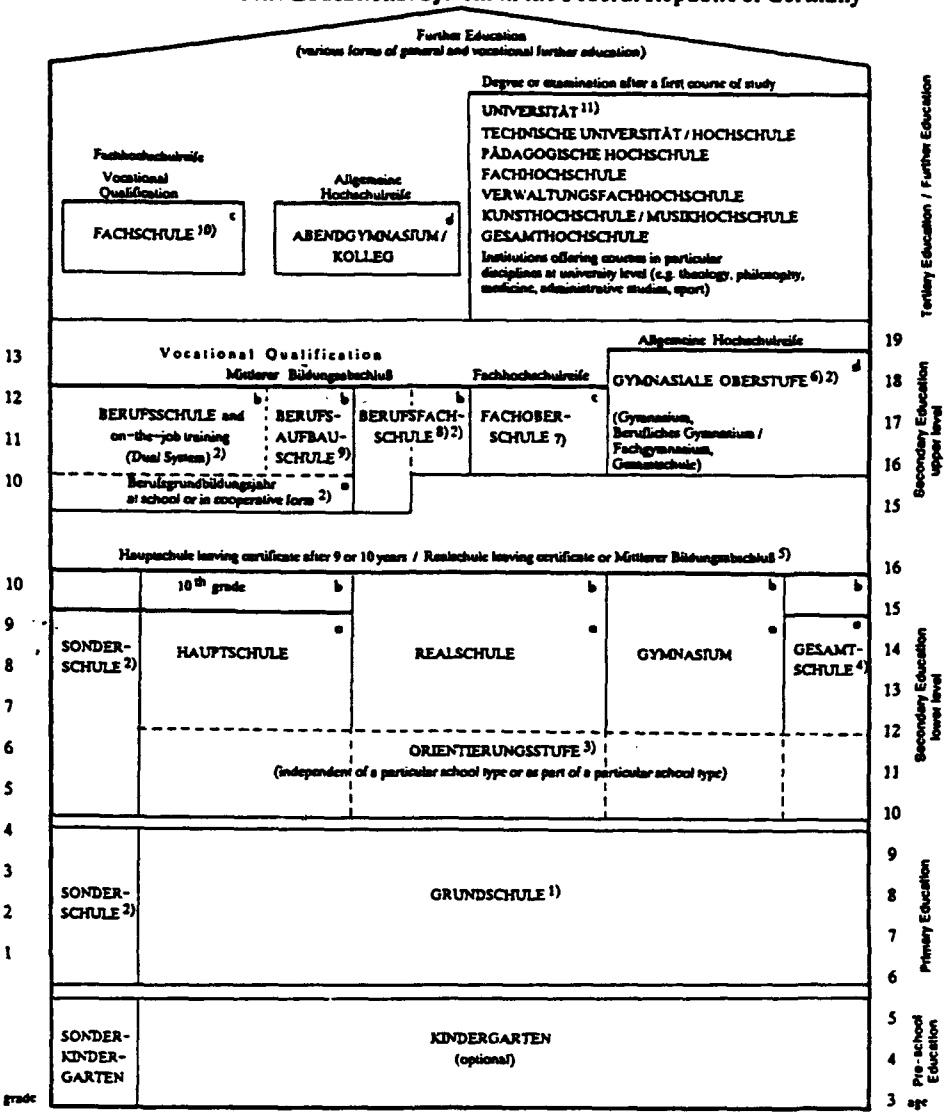
NOTES:

(1) GESAMTSCHULE (comprehensive school) combines HAUPTSCHULE, REALSCHULE, and GYMNASIUM into one school.

(2) This represents the traditional progression in the three-part system. However, flexibility for transfer between tracks has been greatly increased since 1970.

Appendix 7: Educational Structure - Diagram I (Simplified)

Basic Structure of the Educational System in the Federal Republic of Germany



Annotations

1 In some *Länder* special types of transition from pre-school to primary education (pre-school classes, school kindergarten). In Berlin and Brandenburg the primary school comprises 6 grades.

2 The disabled attend special forms of general-education and vocational school types (in some cases integrated with non-handicapped pupils) depending on the type of disability in question. Designation of schools varies according to the law of each *Land*.

3 The *Orientierungsstufe* (sometimes called *Förderstufe*) exists in all *Länder* with the exception of Bavaria (on trial as a pilot scheme), Berlin and Brandenburg (primary schools include grades 5 and 6) and Thuringia.

4 As an integrated comprehensive school this constitutes a separate type of school alongside *Hauptschule*, *Realschule* and *Gymnasium*. The provision of *Gesamtschulen* varies in accordance with the respective educational laws of the *Länder*.

5 These certificates can also be obtained in evening classes.

6 Admission to the *Gymnasiale Oberstufe* requires a formal entrance qualification. The *allgemeine Hochschulreife* can generally be obtained after the successful completion of 13 school years, i.e. consecutive grades. As long as the *allgemeine Hochschulreife* can still in principle be acquired by all pupils after 12 years of schooling in certain new *Länder*, the validity of these certificates is guaranteed in all *Länder* for a transitional period.

7 The *Fachoberschule* is a school type lasting two years (11th and 12th grades) which takes pupils who have completed *Realschule* and qualifies them for *Fachhochschule*. Pupils graduating from the *Berufsaufbauschule* who have acquired a *Fachschule* qualification during or following initial vocational education can enter 12th grade directly. Pupils who have successfully completed *Realschule* and have been through initial vocational training can also enter the *Fachoberschule* directly in the 12th grade. Alternative routes for acquiring the *Fachhochschulreife* outside the *Fachoberschule* are e.g. the *Berufsfachschule* and *Fachschule*.

8 Full-time vocational schools differing in terms of entrance requirements, duration and leaving certificates. Certain two-year *Berufsfachschulen* requiring a *Realschule* certificate for admission lead to a state-recognized examination as technical assistant (*staatlich geprüfter Assistent*), and one-year courses at *Berufsfachschule* offer basic vocational training.

9 Offers extension courses to pupils with vocational qualifications and can enable them to acquire a qualification equivalent to the *Realschule* leaving certificate.

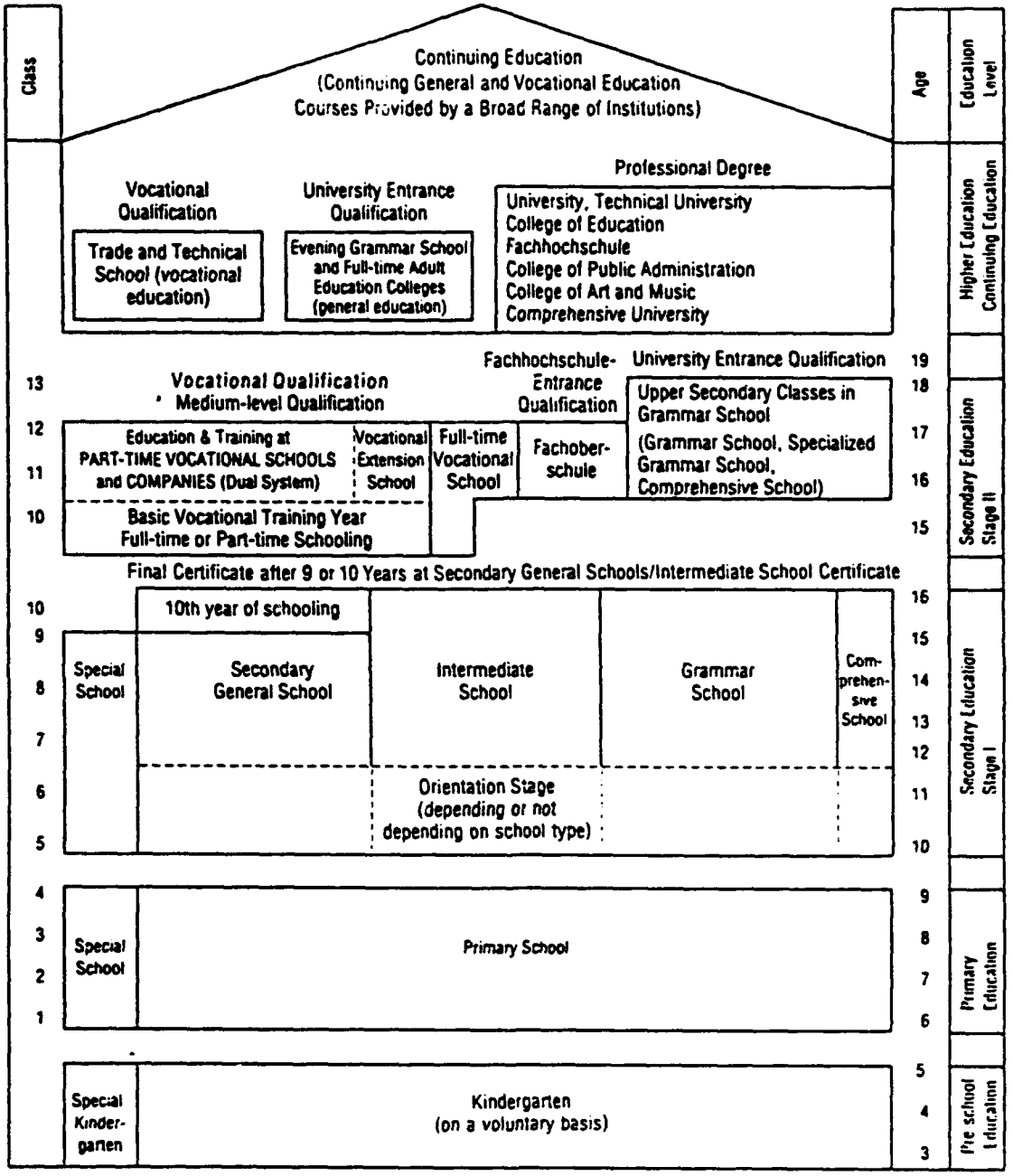
10 *Fachschulen* are schools at the upper level of secondary education; offering courses of between one and three years duration.

11 Including institutions of higher education offering courses in particular disciplines at university level (e.g. theology, philosophy, medicine, administration studies, sport).

Appendix 8: Educational Structure - Diagram II (German)

Source: Adapted from *Basic Structure of the Educational System in the Federal Republic of Germany*, 1990, by the Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Laender* in the Federal Republic of Germany, (p. 2). Bonn: Author.

Basic Structure of the Education System of the Federal Republic of Germany 1991

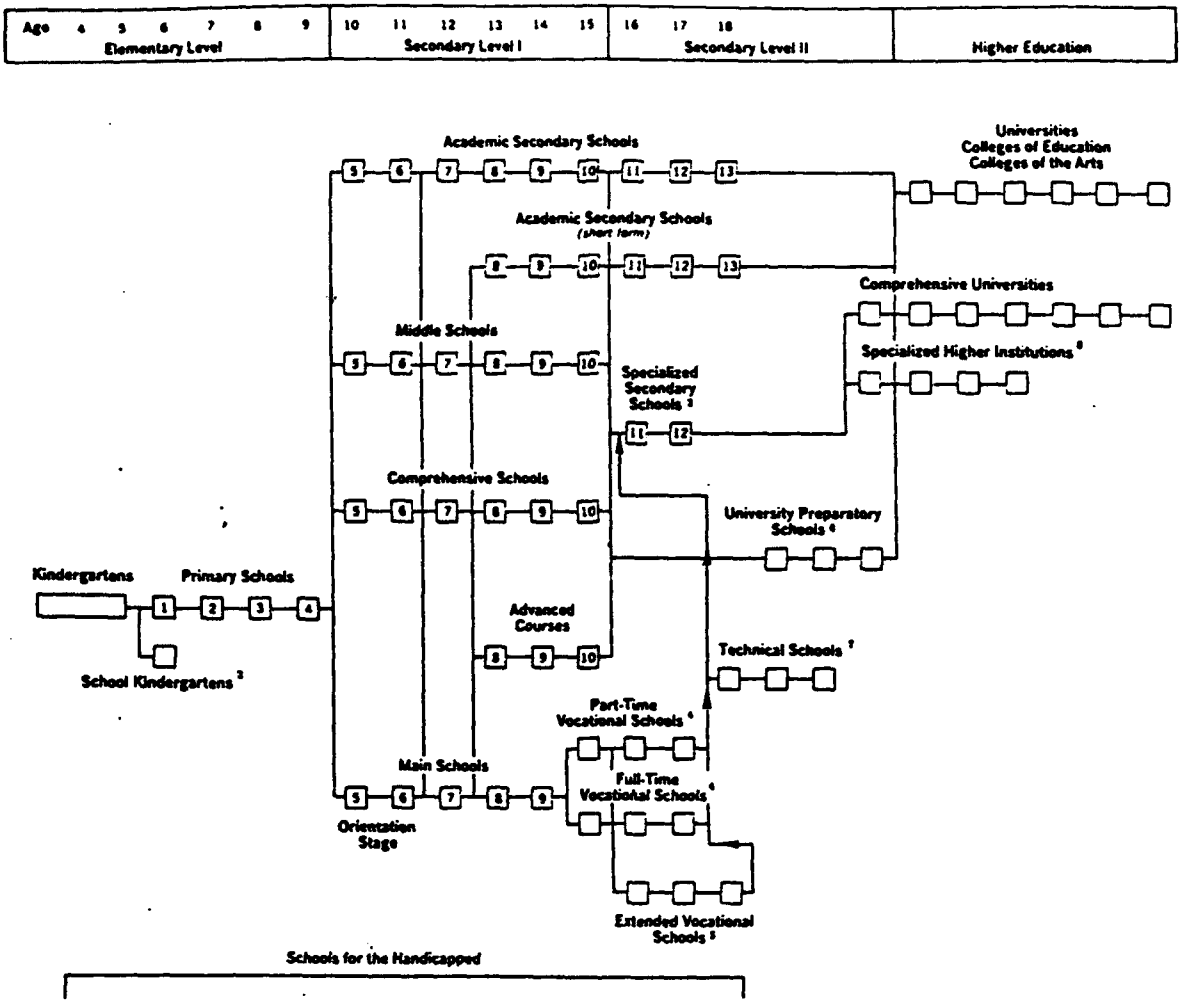


Diagrammatic representation. In individual Laender there may be variations from the above pattern. In principle, transfer between the different school types is possible if certain requirements are fulfilled. Compulsory full-time schooling: 9 years (10 years in BE and NW); compulsory schooling at part-time vocational schools: 3 years.

Appendix 9: Educational Structure - Diagram II (English)

Source: *The School System in the Federal Republic of Germany (BW 1991 Nr. 3/4c)*, 1991, by the Federal Ministry of Education and Science, (p. 12). Bonn: Inter Nationes.

The Basic Educational Structure: 1974 [1]



[1] This chart is limited to major elements of the educational system. Minor variations (some of which are mentioned in the text) are omitted.

[2] Children not ready for the primary school program are enrolled in school kindergartens and enter the primary system as soon as they are ready.

[3] Graduates may enter selected programs of higher education, primarily the specialized higher institutions or comprehensive universities.

[4] Most graduates go directly to work. However, opportunities for additional training are available in other vocational or technical schools or through special programs leading to higher education.

[5] Graduates may enter specialized secondary schools (frequently with advanced standing) or the university preparatory school; or go directly to work.

[6] Students must be 19 years old to enter. Academic prerequisites are flexible. Graduates receive the *Abitur*, thereby qualifying for general (unrestricted) university admission.

[7] Some graduates can enroll in specialized higher institutions or technical universities. Admission procedures are undergoing revision.

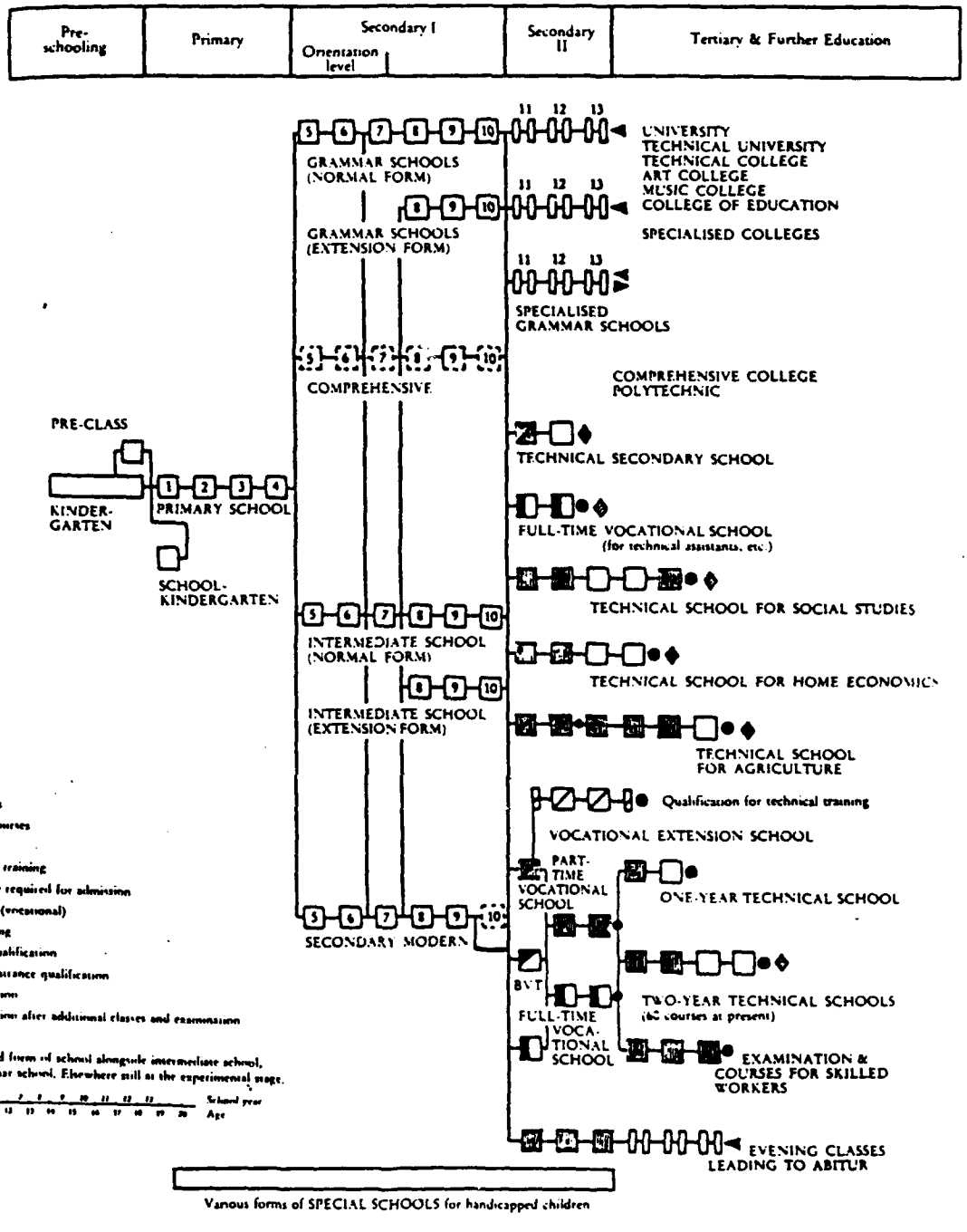
[8] Students can transfer to universities (including comprehensive universities) in fields for which they have acquired the prerequisites, or can continue studies at the universities at an advanced level after graduating from the specialized higher institution.

Source: Adapted from Staendige Konferenz der Kultusminister, *Handbuch fuer die Kultusminister Konferenz, 1974* (Bonn: Bundesdruckerei, 1974), p. 337.

Appendix 10: Educational Structure - Diagram III

Source: *The Educational System of the Federal Republic of Germany* (HEW Publication No. (OE) 76-19127), 1975, by P.S. Bodenmann, (p. 4), Washington, DC: U.S. Government Printing Office.

Structure of the Educational System in the Federal Republic of Germany (1984)



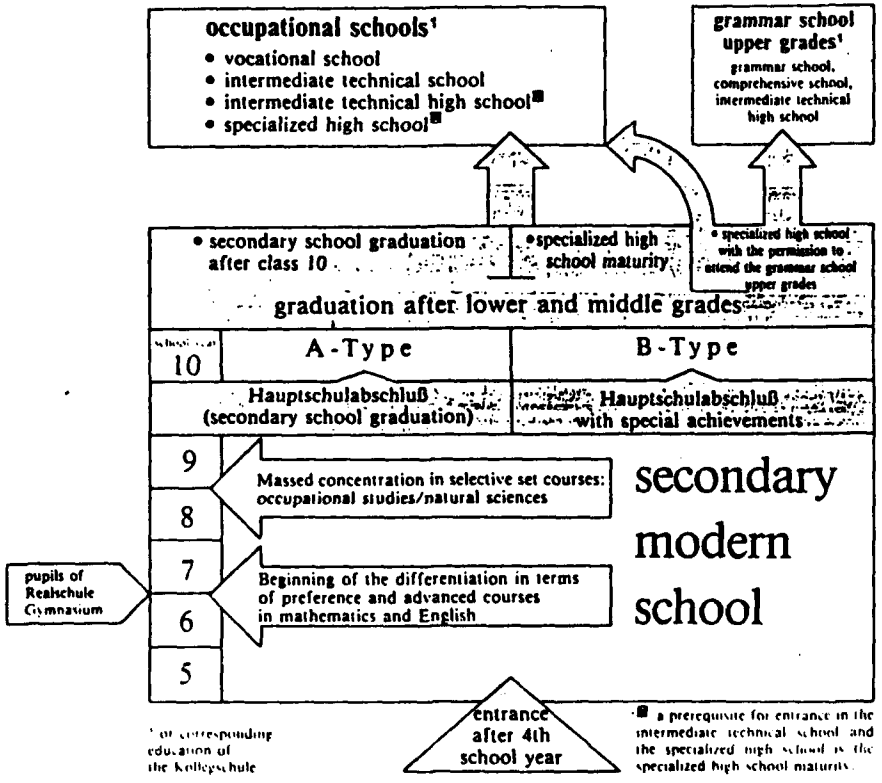
Appendix 11: Educational Structure - Diagram IV

Source: *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuehr. (pp. 61-2). Bonn: Inter Nationes.

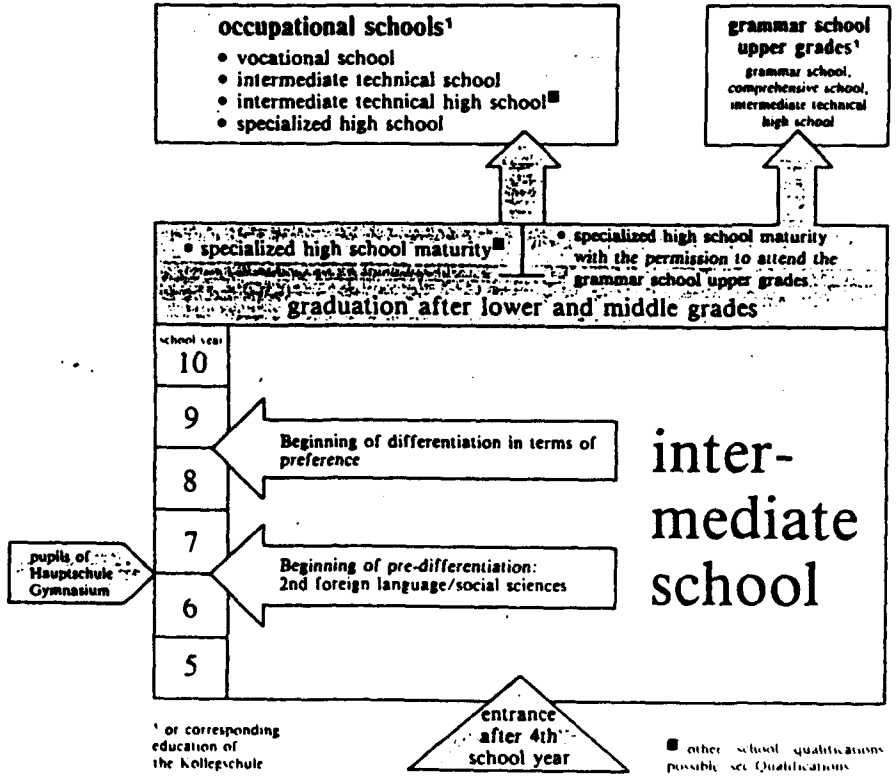
Appendix 12: Educational Structure - Diagram V (Detailed Secondary School)

Source: *Die Schulformen in der Sekundarstufe I*, 1990, by Kultusministerium Nordrhein-Westfalen, (pp. 2,6,9,13). Duesseldorf: Author.

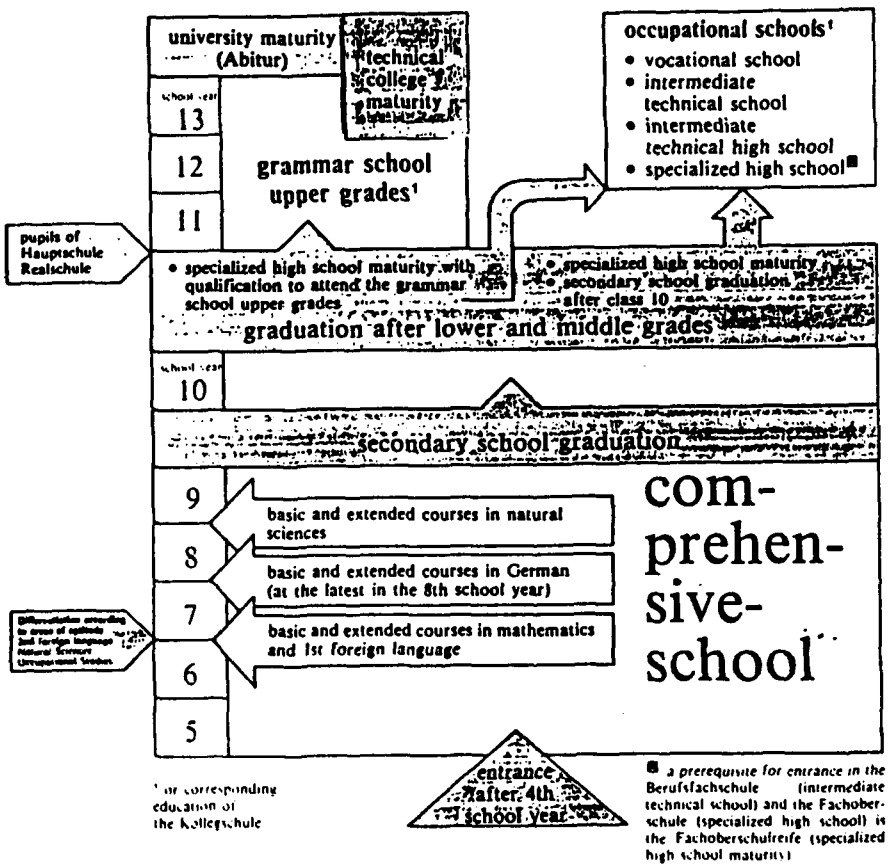
Hauptschule
secondary modern school



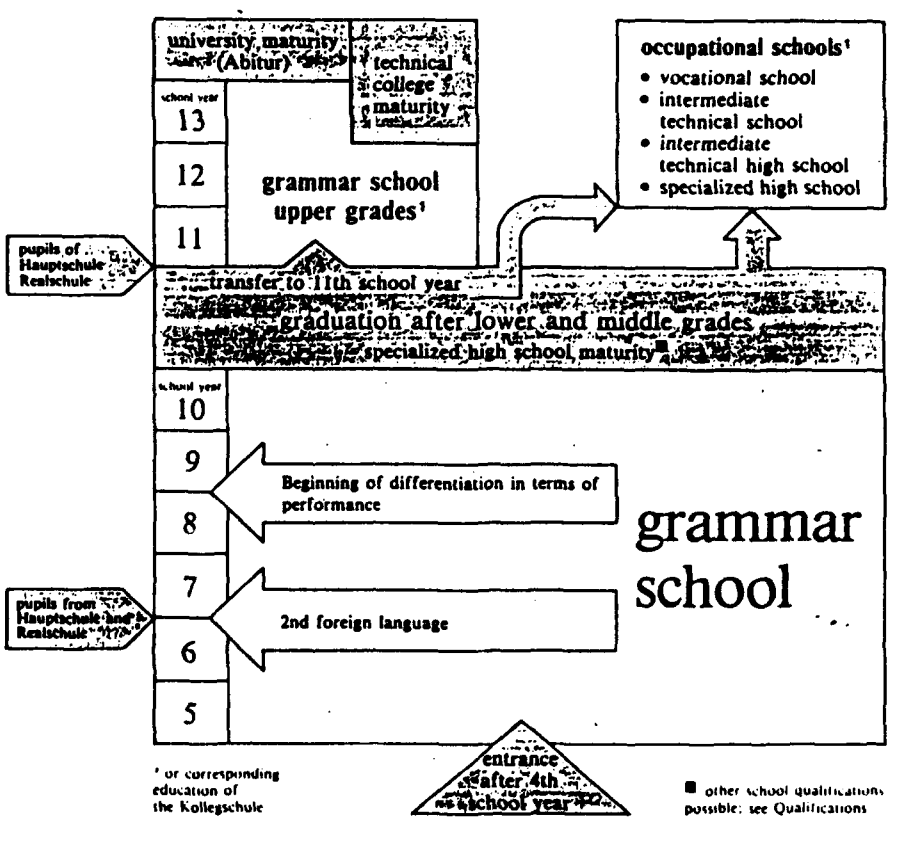
Realschule
intermediate school



Gesamtschule
comprehensive school



Gymnasium
grammar school



Year		1970	1975	1980	1985	1990
Total student population		12,800,500	14,458,300	14,401,900	12,897,100	12,350,906
Total special school population		322,000	403,000	354,300	271,400	251,900
	Backward	264,600	314,400	244,200	163,600	132,700
	Handicapped	57,400	88,600	110,100	107,800	119,200
Total preschool population		1,265,400	1,645,800	1,560,400	1,625,100	1,684,500
	Kindergaerten, Nursery, Day-Care	1,233,600	1,561,600	1,498,200	1,565,000	1,614,500
	Schulkindergaerten & Pre-school	31,800	84,200	62,200	60,100	70,000
Total primary population		3,977,200	3,929,500	2,785,900	2,271,600	2,561,300
	Grundschule	3,972,500	3,914,700	2,772,800	2,254,600	2,534,600
	Gesamtschule/Waldorf	4,700	14,800	13,100	17,000	26,700
Total Secondary Level I population		4,313,800	5,240,200	5,316,000	3,919,600	3,442,800
	Independent Orientation 5-6	-	-	337,900	239,900	218,300
	Hauptschule 5-10	2,374,900	2,510,400	1,933,700	1,332,500	1,054,200
	Realschule 5-10	863,500	1,179,900	1,351,100	1,049,000	864,600
	Gesamtschule/Waldorf 5-10	4,500	143,900	188,900	178,200	241,100
	Gymnasium 5-10	1,062,100	1,394,500	1,495,500	1,110,200	1,053,000
	Evening 5-10	8,800	11,500	8,900	9,800	11,600
Total Secondary Level II population		2,411,600	2,761,700	3,341,100	3,471,400	2,825,200
	Preparatory/Basic Training Year	500	29,600	122,200	131,600	109,200
	Berufsschule - part-time	1,599,400	1,607,300	1,847,500	1,893,300	1,469,400
	Berufsaufbauschule - extension	40,400	27,800	21,800	9,900	7,900
	Berufsfachschule - full-time	182,700	270,800	325,600	339,700	245,600
	Fachoberschule - technical secondary	51,200	92,800	83,300	78,300	80,200
	Fachschule	130,600	107,100	84,900	90,700	115,400
	Health vocational	61,400	88,500	96,700	111,700	107,500
	Technical gymnasium 11-13	8,100	28,700	54,500	61,100	62,600
	Gesamtschule/Waldorf 11-13	4,500	7,200	18,200	23,100	28,600
	Gymnasium 11-13	317,400	469,000	623,500	640,100	496,700
	Evening Schools & Kolleg 11-13	15,400	23,300	26,300	28,000	30,200
	Tech/vocational preparatory academy	-	9,600	36,600	63,900	71,900

Appendix 13: Enrollment Statistics and Pupil/Teacher Ratios

Sources: Based on data from *Basic and Structural Data: Education Statistics for the Federal Republic of Germany 1992/1993*, November 1992, by the Federal Ministry of Education and Science, (pp. 22, 26-29, 71), Bonn: Author; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuehr, (pp. 196-197, 206-207, 210), Bonn: Inter Nationes.

Year		1970	1975	1980	1985	1990
Total higher education population		510,500	840,800	1,044,200	1,338,000	1,585,206
	Art colleges	10,900	15,400	18,300	21,700	24,200
	Fachhochschulen	89,500	145,200	202,000	301,300	372,600
	Universitaet	410,100	680,200	823,900	1,015,100	1,188,300
Total private school population		1,667,458	2,094,724	2,116,867	2,194,542	-
Total private school population without pre-schools		433,858	533,124	618,667	629,542	-
	Pre-school	1,233,600	1,561,600	1,498,200	1,565,000	-
	General	290,347	355,266	420,137	408,536	-
	Vocational	117,127	134,892	126,304	135,124	-
	Vocational-Health	26,384	40,066	45,226	53,482	-
	Fachhochschule	-	2,900	27,000	32,400	-
Total teachers and Pupil/teacher ratio		338,700/26.7	431,000/23.3	478,100/18.5	457,100/15.7	-
	Primary/Hauptschule	201,500/31.6	234,300/27.3	232,900/21.6	214,500/17.8	-
	Realschule 5-10	37,800/23.1	51,800/22.7	62,700/21.5	59,300/17.7	-
	Gymnasium 5-10	-	64,300/21.7	73,500/20.4	65,300/17.0	-
	Gymnasium 11-13	-	33,800/13.5	48,300/12.9	56,600/11.3	-
	Gesamtschule/Waldorf 5-13	-	11,300/16.3	16,400/15.4	18,500/12.9	-
	Evening school	1,500/15.9	2,100/16.2	2,300/14.8	2,800/13.7	-
	Vocational	50,500/39.6	64,100/33.8	79,200/32.0	89,500/29.6	-
	Special schools	21,000/15.3	33,400/11.8	41,000/8.7	40,100/6.9	-

Appendix 13 (cont.): Enrollment Statistics and Pupil/Teacher Ratios

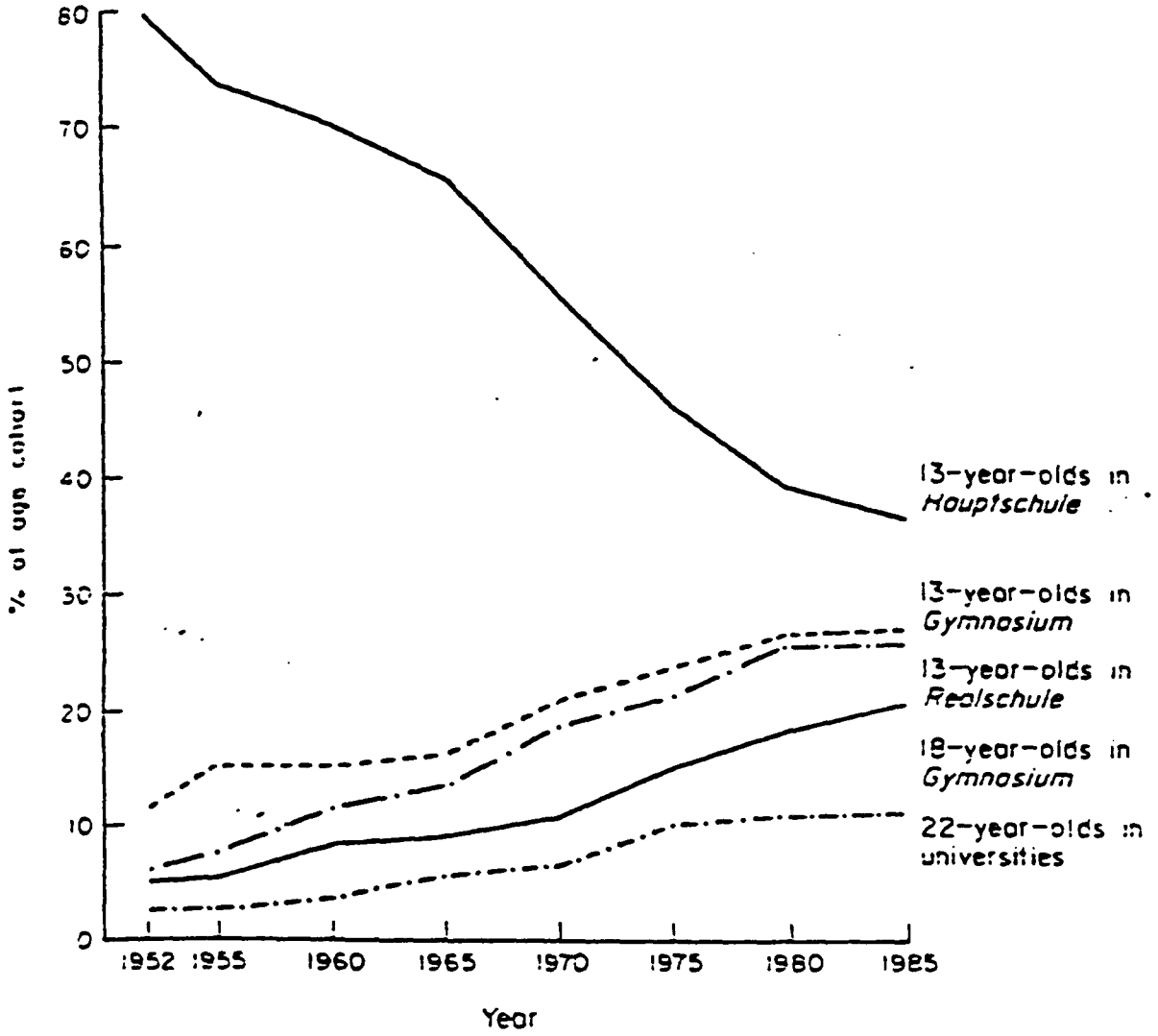


Figure 2
Enrolment rates for selected age cohorts and institutions 1952–85

Appendix 14: Enrollment Chart
Source: "Federal Republic of Germany" by J. Naumann & H. Kohler in *The Encyclopedia of Comparative Education and National Systems of Education*, 1988, by T.N. Postlethwaite (Ed.), (p. 297). New York: Pergamon Press.

Scale of Grading (*Notenskala*)

(1)	Very good (*Sehr gut*)	Well above the required standard.
(2)	Good (*Gut*)	Fully meets the required standard.
(3)	Satisfactory (*Befriedigend*)	On the whole meets the required standard.
(4)	Adequate (*Ausreichend*)	Some deficiencies but on the whole meets the required standard.
(5)	Unsatisfactory (Poor) (*Mangelhaft*)	Doesn't meet required standard but has basic knowledge and could remove deficiencies in a foreseeable period.
(6)	Inadequate (Very poor) (*Ungenuegend*)	Does not meet required standard and basic knowledge is so fragmented couldn't remove deficiencies in a foreseeable period.

University Grading Scale

(1) Distinction
(2) Good
(3) Satisfactory
(4) Passed

Appendix 15: Grading Scales

Sources: Based on information from *Education in the Federal Republic of Germany: Aspects of Curriculum and Assessment*, 1986, by Her Majesty's Inspectorate (HMI) Department of Education and Science, (p. 7), London: Her Majesty's Stationery Office; *Educating Americans for the 21st Century*, 1983, by the National Science Board Commission on Pre-College Education in Mathematics, Science and Technology, (p. 8), Washington, DC: National Science Board National Science Foundation.

Academic School Certificates

1. Certificate: Secondary school graduation Class 9
   German: *Hauptschulabschluss*
   Also called: *Hauptschule* leaving certificate Class 9
   Requirements: Complete *Hauptschule* Class 9
   Admits to: Part-time Vocational School & Apprenticeship, Vocational Extension School, full-time vocational school, Hauptschule Klasse 10.

2. Certificate: Secondary school graduation class 10 (Type A or B)
   German: *Hauptschulabschluss nach Klasse 10* (A- or B-Type) Sekundarstufe I
   Also called: Main School Final certificate
   Hauptschule leaving certificate class 10
   Requirements: Complete *Hauptschule* class 10 (Type A Natural Science and Occupational Studies or Type B German, English and Mathematics)
   Admits to: *Berufsschule Duale-System*, *Berufsfachschule*, evening school.

3. Certificate: Specialized high school maturity
   German: *Fachoberschulreife Sekundarstufe I* or
   Mittlerer Bildungsabschluss Sekundarstufe I
   Realschulabschluss
   Mittlerer Reife
   Mittlererabschluss
   Also called: *Realschule* leaving certificate or equivalent
   Intermediate School Final certificate
   Requirements: Complete class 10 in the *Gymnasium* or *Realschule* or *Hauptschule* (with special achievements - Type A and completion of vocational training or additional courses in evening school - Type B), completion of *Berufsschule*, *Berufsaufbauschule*, or *Berufsfachschule*
   Admits to: *Fachoberschule* or with special achievements and selection, can enter *Gymnasiale Oberstufe*.

4. Certificate: Vocational school qualifications (various levels)
   German: *Abschlusszeugnis*
   Requirements: Complete *Berufsschule*, *Berufsaufbauschule*, or *Berufsfachschule*
   Admits to: *Fachschule* after a period of time in employment.

5. Certificate: *Fachoberschule* leaving certificate or equivalent
   German: *Fachhochschulreife*
   Also called: Entitlement to attend a *Fachhochschulen*
   Requirements: Complete *Fachoberschule* and pass state written and oral examination
   Admits to: Polytechnic college

6. Certificate: *Fachhochschule* certificate for university entrance
German: *Graduiert*
Requirements: 6 semesters at a polytechnic college that includes some practical training.
Admits to: Employment or university entrance.

7. Certificate: General Qualification for University Admission
German: *Allgemeine Hochschulreife*
Requirements: Complete *Gymnasium* and pass state oral and written *Arbitur* examinations or obtain the *Graduiert* degree from a *Fachhochschule*.
Admits to: University.

9. Certificate: Diploma
German: *Diplom*
Requirements: 8-12 semesters at a university and pass a qualifying diploma examination at the polytechnic or university.
Admits to: Employment in profession such as science or engineering or further study toward a doctorate.

10. Certificate: Master of Arts Degree
German: *Magister Artium*
Requirements: 8-12 or more semesters at a university and pass a qualifying diploma examination at the polytechnic or university (a new degree in areas where there is no *Diplom* or state exam).
Admits to: Employment (e.g. journalism) for humanity students who don't want to teach or pursue further study toward a doctorate.

11. Certificate: Doctorate or Research Degree
German: *Promotion*
Requirements: Dissertation, oral exam and 2-4 years of study after the *Diplom*.
Admits to: Employment or further study.

12. Certificate: Second Doctorate and professorship
German: *Habilitation*
Requirements: Second scholarly thesis or dissertation, lectures before colleagues and usually 2-3 years as an assistant professor.
Admits to: Professorship

Professional Licensing

1. Certificate: First State Examination
   German: *Staatsexamen, or Physikum*
   Requirements: Complete a minimum of 8-12 semesters of study in a particular specialty.
   Admits to: Professional probationary period in a profession such as law, medicine, education.

2. Certificate: Second State Examination
   German: *Staatsexamen*
   Requirements: After probationary period (*Referendar*)
   Admits to: Profession such as law, medicine, education.

Vocational Skill Certifications

1. Certificate: Journeyman (crafts), Skilled worker (industry), Assistant (business/technical)
   German: *Geselle/Facharbeiter/Gehilfe*
   Also called: Skilled worker, craftsperson, salesclerk
   Requirements: Passing the final apprenticeship examination (*Lehrabschlusspruefung*) or completion of *Berufsfachschule*
   Admits to: Evening grammar school (*Abendgymnasium*), university preparatory school (*Kolleg*), or technical schools (*Fachschulen*).

2. Certificate: Master Craftsman, Advanced Industrial Technician
   German: *Meister, Techniker*
   Requirements: Pass licensing examination after several years of practical experience.
   Admits to: Higher employment or teach others in licensed area.

Final *(Abitur)* Certificate From Bavaria

Individual results within the final qualification

1. **Grundkurse**

Subject	No of semester courses completed	Points gained each semester 12/1	12/2	13/1	13/2	Total points in the subject[1]
German	2	—	—	12	12	24
English	3	12	12	9	—	33
French						
Greek						
Latin						
Art						
Music	2	11	12	—	—	23
History	2	—	—	13	13	26
Geography						
Social Studies	2	12	12	—	—	24
Economics	3	12	12	8	—	32
Religious education	2	14	13	—	—	27
Ethics						
Mathematics						
Biology						
Chemistry	2	12	13	—	—	25
Physics						
Sport	2	10	—	—	13	23
Total points scored in the 20 semester courses						237

2. **Leistungskurse**

Subject	Points gained each semester 12/1	12/2	13/1	Total points in each subject[2]
Physi	44	43	45	132
Matr	43	41	43	127
Total points scored in six semester courses				259
Project (in subject: physics)[3]				30

3. **Abitur examination (including the results of the last semester's work)**

Subject examined	Points scored in semester 13/2	Examination results Written	Oral	Total points in each exam subject[4]
Physics	15	15	—	75
Mathematics	15	13	—	67
English	11	10	—	51
Economics	13		14	69
Points scored in the *Abitur* examination				262
Total points (ie totals for GK, LK and examination)				788

Average mark 1.2 one point two (in words)

Appendix 17: Sample Arbitur Certificate

Source: *Education in the Federal Republic of Germany: Aspects of Curriculum and Assessment*, (1986), by Her Majesty's Inspectorate (HMI) Department of Education and Science, (pp. 46-7). London: Her Majesty's Stationery Office.

4. Semester results additional to the overall qualification

Subject	Semester	Total points	Subject	Semester	Total points
German	12/1	10	RE	13/2	7
German	12/2	10	Sport	12/2	10
RE	13/1	10	Sport	13/1	8

Compulsory subjects completed before the assessment phase (ie years 12 & 13)

Subject	In years
Latin	from 7 to*11
Art	from 5 to*9 + 11
Geography	from 5 to*9 + 11
Biology	from 5 to*10

*inclusive

This certificate includes completion of the qualification in Latin

Remarks:

Having met all the conditions and passed the *Abitur* examinations

Miss/Mrs/Mr .....

has gained the entitlement to study at a university in the Federal Republic of Germany, including Berlin (West)

Munich, date:

Chairman of the examination committee Head

....

To convert the points totals to the 6 grade scale, it should be noted that:
Grade 1 corresponds to 15/14/13 points, depending on the 'tendency' mark (+ or −)
Grade 2 corresponds to 12/11/10 points, depending on the 'tendency' mark (+ or −)
Grade 3 corresponds to 9/ 8/ 7 points, depending on the 'tendency' mark (+ or −)
Grade 4 corresponds to 6/ 5/ 4 points, depending on the 'tendency' mark (+ or −)
Grade 5 corresponds to 3/ 2/ 1 points, depending on the 'tendency' mark (+ or −)
Grade 6 corresponds to 0 points, depending on the 'tendency' mark (+ or −)

The final points totals corresponding to the 6 grade scale are obtained:
1. by dividing the relevant 'total points in the subject' by the number of semester courses concerned
2. by dividing the relevant 'total points in the subject' by 9
3. by dividing the points entered by 2
4. by dividing the relevant 'total points in the examination subject' by 5.

Appendix 17 (cont.): Sample Arbitur Certificate

Year		1970	1975	1980	1985	1990
Total school leavers		780,700	954,600	1,144,700	1,110,200	812,200
Total leavers after compulsory schooling		489,100	461,600	500,800	391,600	253,500
	Without Hauptschulabschluss	140,300	114,600	109,400	71,700	53,600
	With Hauptschulabschluss	348,800	347,100	391,400	319,900	199,900
Total leavers with Mittlerer Bildungsabschluss		200,100	318,000	422,200	419,700	284,000
Total leavers with university entrance		91,500	175,000	221,700	298,900	274,700
	With Fachhochschulreife	4,300	48,800	53,200	68,000	74,900
	With Allgemeine Hochschulreife	87,200	126,200	168,500	230,900	199,800
Total leavers with a vocational qualification (may be double counted, so not included in total)		523,200	511,700	612,800	647,800	556,800

Appendix 18: School Leavers

Sources: Based on data from *Basic and Structural Data: Education Statistics for the Federal Republic of Germany 1992/1993*, November 1992, by the Federal Ministry of Education and Science, (pp. 42-43), Bonn: Author; *Schools and Institutions of Higher Education in the Federal Republic of Germany: A Survey of Educational Policy and the Educational System*, 1989, by C. Fuchs, (pp. 208-209), Bonn: Inter Nationes.

Pre-school Education

Pre-school (*Kindergaerten*)

Primary Education

Pre-school *(Schulkindergaerten)*
Primary School 1-4 (*Grundschule*)

Secondary Education Lower Level *(Sekundarstufe I)*

Orientation Level/Trial Grades/Mixed Ability 5-6 *(Orientierrungsstufe)*
Main School/Secondary Modern 7-9 *(Hauptschule)*
Main School/Secondary Modern 10 *(Hauptschule)*
Middle/Intermediate School 7-10 *(Realschule)*
Middle/Intermediate School 10 *(Realschule)*
Middle/Intermediate Extension School 8, 9, 10 *(Realschule)*
Comprehensive School Lower Level 7-10 *(Gesamtschule)*
Academic Secondary/Grammar School Lower Level 7-10 *(Gymnasium)*
Academic Secondary/Grammar School Lower Level Extension 7, 8, 9, 10 *(Gymnasium)*

Secondary Education Upper Level *(Sekundarstufe II)*

Dual-System Part-Time Vocational School and Year of Basic Vocational Training 10-12 *(Berufsschule)*
Full-Time Vocational School 10-12 *(Berufsfachschule)*
Vocational Extension School 10-12 *(Berufsaufbauschule)*
Technical Secondary School 11-12 *(Fachoberschule)*
Vocational Gymnasium 11-13 *(Gymnasiale Oberstufe - Berufliches Gymnasium/Fachgymnasium)*
Comprehensive School Upper Level 11-13 *(Gymnasiale Oberstufe - Gesamtschule)*
Academic Secondary/Grammar School Upper Level 11-13 *(Gymnasiale Oberstufe - Gymnasium)*

Alternative "Second Way" Education *(Zweiter Bildungsweig)*

Academic Secondary Evening School *(Abendgymnasium)*
University Preparatory School *(Kolleg)*
Correspondence Courses (*Fernunterricht*)
Examination of Particularly Gifted Persons in Employment

Post-Secondary or Higher Education

Advanced Specialty School *(Fachschule)*
Open University (*Fernuniversitaet*)
Degree Granting College/Polytechnic *(Fachhochschule)*
Church or Theology College *(Fachhochschule)*
Music and Art College *(Kunsthochschule)*
Business Administration College *(Verwaltungsfachhochschule)*
Teacher College *(Paedagogische Hochschule)*
Military University *(Hochschulen der Bundeswehr)*
Comprehensive University *(Gesamthochschule)*
Technical University *(Technische Universitaet)*
Traditional University *(Universitaet)*
Graduate College

Special Education

Special School for Physically & Mentally Handicapped *(Sonderschule)*

Private Education

Free School

Continuing Education

Adult schools *(Volkshochschule)*
Correspondence courses (*Fernunterricht*)

Appendix 19: School Types

Glossary

ABENDGYMNASIUM: General secondary night school for employed adults providing university entrance qualification.

ALLGEMEINE HOCHSCHULREIFE: General university entrance qualification, as a rule obtained by taking a final examination (*Abiturprüfung*) after 13 years of schooling, including upper secondary education, in general at a *Gymnasium*. The holder has the right to study at all institutions of higher education without restrictions with regard to subject areas.

BERUFLICHES GYMNASIUM: Vocational school at the upper level of secondary education (grades 11,12,13) which leads to a general university entrance qualification. Career oriented-subject areas and focuses such as economics and engineering are added to the subjects otherwise available at the general education *Gymnasium*.

BERUFSAUFBAUSCHULE: Vocational extension school giving access to the upper level technical types of education by providing a qualification equivalent to that of the *Realschule* leaving certificate.

BERUFSFACHSCHULE: Vocational school at the upper level of secondary education that prepares students for jobs or provides them with vocational training promoting at the same time general education. Depending on the objective of training, the requirements for admission (*Hauptschule* or *Realschule* certificate) vary as well as the period of training (from 1 year to 3 years).

BERUFSGRUNDBILDUNGSJAHR: Basic vocational training year as the first stage of vocational training either in a full-time school or in the cooperative form of part-time school and on-the-job training.

BERUFSSCHULE: Part-time vocational school at the upper level of secondary education providing general and career-oriented education for students in initial vocational training; special attention is payed to the requirements of training in the dual system (part-time school and on-the-job training).

FACHGYMNASIUM: see *Berufliches Gymnasium*.

FACHHOCHSCHULE: Institution of higher education offering academic training with a practical bias, particularly in engineering, economics, social work, agriculture and design.

FACHHOCHSCHULREIFE: Qualification obtained, as a rule, by taking a final examination after 12 years of schooling, the last 2 years at a *Fachoberschule*. It provides access to studies at *Fachhochschulen* and the corresponding courses of study at *Gesamthochschulen*.

FACHOBERSCHULE: Technical secondary school (grades 11 to 12) specialized in various areas and providing access to *Fachhochschulen*.

FACHSCHULE: Technical school providing advanced vocational training.

GESAMTHOCHSCHULE: Institution of higher education existing in two *Länder* combining functions of the universities, *Fachhochschulen* and, in some cases, colleges of art and music. It offers courses of study of various durations and leading to different degrees.

GESAMTSCHULE: Comprehensive school existing in two forms: the cooperative comprehensive school combines the schools of the traditional tripartite system under one roof and harmonizes the curricula in order to facilitate student transfer between the different coexisting types; the integrated comprehensive school admits all pupils of a certain age without differentiating between the traditional school types. In 1989 5.9 per cent of the student population at the lower secondary level attended comprehensive schools. A number of the integrated comprehensive schools also have the upper secondary level, usually the *Gymnasiale Oberstufe*.

GYMNASIALE OBERSTUFE: Upper level of the *Gymnasium* (grades 11,12,13); the final examination (*Abiturprüfung*) provides a general university entrance qualification.

GYMNASIUM: General education secondary school (grades 5 to 13) providing general university entrance qualification. See also *Allgemeine Hochschulreife*.

HAUPTSCHULE: General education secondary school - lower level - providing full-time compulsory education and leading normally to vocational education and training.

KOLLEG: Institute of general education preparing adults for higher education.

KUNSTHOCHSCHULE: College of arts

MITTLERER BILDUNGSABSCHLUSS: Equivalent to the *Realschule* certificate; this qualification can also be obtained in vocational schools (*Berufsschule, Berufsaufbauschule, Berufsfachschule*) in combination with a vocational qualification.

MUSIKHOCHSCHULE: College of music

ORIENTIERUNGSSTUFE: Grades 5 and 6 may be organized as an orientational stage during which the decision on a particular school type is left open. In some *Länder* the orientation stage may be a separate organisational unit independent of the traditional school types which then start with grade 7.

PÄDAGOGISCHE HOCHSCHULE: Teacher training college which only exists in three *Länder* where teachers are trained for careers in primary and lower secondary as well as special education. In the other *Länder*, courses for the above-mentioned teaching careers are offered by universities, *Gesamthochschulen* and colleges of art and music.

REALSCHULE: General education secondary school - lower level, normally grades 5 to 10 - going beyond the level of the *Hauptschule* and granting access to upper secondary education where a higher education entrance qualification or a vocational qualification may be obtained.

SONDERSCHULE: Special schools for children with learning disabilities, schools for the blind and visually handicapped, schools for the deaf and hard of hearing, schools for children with speech handicaps, schools for the physically handicapped, schools for mentally handicapped children, and schools for children with behavioural disturbances.

TECHNISCHE UNIVERSITÄT / TECHNISCHE HOCHSCHULE: Technical university.

VERWALTUNGSFACHHOCHSCHULE: Special type of Fachhochschule offering administrative studies which include periods of on-the-job training for future civil servants at the middle echelon level in federal, *Land* or local authorities.

Appendix 20: School Descriptions (Brief)

Source: *Basic Structure of the Educational System in the Federal Republic of Germany*, 1990, by the Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Laender* in the Federal Republic of Germany, (p. 3), Bonn: Author.

Abendgymnasien

permit able, gainfully-employed persons to acquire university/college entrance in three years, as a rule. Those wishing to do so must have completed vocational training for a specific occupation or offer proof of three years professional experience, be at least 19 years of age, and usually have completed a one-semester preliminary course before embarking on the main course. With the exception of the last three semesters, students must be gainfully employed.

Abendhauptschulen

offer adults a 12-month course to acquire a *Hauptschulabschluß* (a Main School Final Certificate).

Abendrealschulen

provide courses lasting four semesters, culminating in the *Realschulabschluß* (Intermediate School Final Certificate).

Berufsaufbauschulen

are schools which are attended by young persons in addition to normal *Berufsschule* or on completion of their compulsory education, and who are either undergoing or have completed their vocational training. These schools run training courses covering general education and technical theory going beyond the objectives of a normal *Berufsschule* which culminate in a final certificate equivalent to a *Realschulabschluß* (Intermediate Certificate). This entitles those holding it to attend a *Fachschule* (see below). The training course taken full-time lasts 12 months; it lasts correspondingly longer if taken part-time.

Berufsfachschulen

provide full-time instruction programmes lasting at least one year. Vocational training or professional activity are not an enrolment requirement. Their task is to offer general and specialized learning content and to enable pupils to successfully complete training for a recognized occupation or part of the training course in one or more officially recognized trades, or to enable pupils to complete vocational training of the type which can only be acquired in schools.

Berufskollegs

are vocational training institutions requiring pupils to have obtained their *Realschulabschluß* (see above) or equivalent as an entrance qualification. Their programmes lead in 1 to 3 years to an initial vocational qualification and, if certain conditions are fulfilled, and an attendance of two years (minimum) completed, may acquire *Fachhochschulreife* (entitlement to attend a *Fachhochschule*). As a rule, *Berufskollegs* offer full-time courses. Part-time instruction is possible in isolated cases in cooperation with industrial training centres.

Berufsoberschulen

are schools offering full-time instructional courses based on completed training for a trade or corresponding professional experience and *Realschulabschluß* (see above) or equivalent certificate. The courses provide general and specialized education/training over a minimum period of two years permitting successful students to obtain a subject tied *(fachgebunden)* university/college entrance qualification.

Berufsschulen

are schools attended by young persons who are either obliged or entitled to do so and who are either undergoing vocational training or already working. These schools have the task of teaching pupils general and specialized learning content whilst giving due consideration to the requirements of vocational training. Instruction takes place on a part-time basis on one or more days a week or in continuous sections (block instruction); it is carried out in close cooperation with plant training and interplant training centres. Within the framework of vocational training, divided up into a basic and a specialized level, the basic level *(Grundschule)* can be completed in the form of a Vocational Foundation Training Year involving full-time instruction for 12 months, or in the cooperative form of the dual system.

Berufsvorbereitungsjahr

prepares young persons without a training contract for their future profession. The *Berufsgrundbildungsjahr* (Basic Vocational Training Year) provides basic vocational training, full or part-time, of a general or specific nature.

Fachakademien

are vocational training establishments requiring a *Realschulabschluß* (see above) or equivalent school certificate as an entrance qualification. As a rule, the courses offered follow on completed vocational training or professional activity and prepare students for entry into a more elevated career. The courses are full-time and run for a minimum of two years.

Fachgymnasien

are *Gymnasien* with a vocation-related bias, attendance of which requires successful completion of *Realschule* or a similiar qualification.

Fachschulen

are schools which basically demand the successful completion of a corresponding vocational training course or related professional activity. As a rule, additional experience in another occupation is also asked for. The courses provide further education/training in depth whilst promoting general education. Full-time training courses at *Fachschulen* usually last at least one year: part-time instructional courses take correspondingly longer.

Fachoberschulen

are schools which, taking a *Realschulabschluß* (see above) or equivalent as a basis, teach specialized theoretical and practical knowledge and skills as well as general education leading to *Fachhochschule* (Polytechnic) entrance. Class 11 is concerned with instruction and specialized practical training: relative vocational training excuses students attendance of Class 11. As a rule, the course in Class 12 are full-time. If taken part-time, the courses last a minimum of two years.

Gesamtschulen

are institutions in which the educational programmes offered by *Hauptschulen* (Main Schools), *Realschulen* (Intermediate Schools) and *Gymnasien* (Grammar Schools) are amalgamated under one roof content-wise *(integrierte Gesamtschule*/Integrated Comprehensive School) or organization-wise (*Kooperative Gesamtschule*/Cooperative Comprehensive School) leading to corresponding final certificates in the educational courses offered.

Appendix 21: Secondary School Descriptions (Expanded)

Source: *The School System in the Federal Republic of Germany* (BW 1991 Nr. 3/4e), 1991, by the Federal Ministry of Education and Science, (pp. 25-6), Bonn: Inter Nationes.

Grundschulen

are Primary Schools with Classes 1 to 4 — in Berlin 1 to 6 — which prepare pupils for future attendance of secondary schools by teaching them basic knowledge and skills.

Gymnasien

are secondary schools (Grammar Schools) which, under normal circumstances, follow on from *Grundschule* (see above) or Class 6 at *Hauptschule* (see below). Pupils usually attend these schools for 9 years (Classes 5 to 13) or 7 years (Classes 7 to 13). There also are *Gymnasien in Aufbauform* (Continuation Grammar School) attendance of which requires, as a general rule, *Realschulabschluß* (see above). The final certificate *(Abitur)* issued by *Gymnasium* provides pupils with the entrance qualification for universities and colleges.

Hauptschulen

are secondary schools providing education for Classes 5 to 9 or 10, depending on the regulations in the *Bundesland* concerned on a compulsory Class 10 or Classes 7 to 9/10 in the case of 6-class *Grundschulen* or 2-year independent *Orientierungsstufen (Orientation Levels). These schools provide a general education programme as the basis for practical vocational training.*
Grundschulen and *Hauptschulen* are called *Volksschulen* (Elementary Schools) in Bavaria where they are amalgamated into one school unit.

Kollegs

are full-time schools preparing pupils for university/college entrance. Conditions of acceptance for courses at these schools are the same as for *Abendgymnasien* with the difference that pupils must not be gainfully employed.

Kollegschule

are schools in Northrhine-Westphalia which offer full or part-time courses of a general educational or vocational nature at Secondary Level II, permitting varying final certificates. These institutions do not have a uniform organizational structure. Because of the differing scholastic composition, among other things, a double qualification can be acquired simultaneously, or in succession. The opportunity is also offered to obtain missed Secondary Level I final certificates.

Orientierungsstufen/Förderstufen

comprise Classes 5 and 6 and are either attached to secondary schools *(schulformabhängig)* or operate independently *(schulformunabhängig).*

Realschulen

are secondary schools (Classes 5 to 10) following on from *Grundschule* or Class 6 and *Hauptschule.* A final certificate issued by a Realschule provides the basis for careers in middle-management and positions at a similar level. It also entitles those holding such a certificate to attend a *Fachoberschule* (see above), a *Fachgymnasium* (see above) or transfer to a *Gymnasium in Aufbauform* (see above).

Sonderschulen

are institutions requiring full-time attendance for the promotion and care of physically, mentally, psychically or socially handicapped children or who cannot be taught with adequate success at normal schools. Such institutions also include *Realsonderschulen* and *Gymnasialsonderschulen.*

SELECTED GLOSSARY

German	English
	A
Abendgymnasium	Academic secondary school, evening program
Abitur	Secondary school leaving certificate, the primary requirement for unlimited admission to higher education
Abiturpruefung	Examination for the *Abitur*
Abschlusspruefung	Terminal examination for a specific school program
Abschlusszeugnis	Certificate of completion at various levels
Allgemeinbildende Schule	School of general education
Allgemeine Hochschulreife	General (i.e., unrestricted) admission to higher education
Aufbauzug (pl. *-zuege*)	Advanced classes
	B
Beruf	Occupation
Berufsaufbauschule	Extended vocational school
Berufsfachschule	Full-time vocational school
Berufsschule	Part-time vocational school
Berufssonderschule	Vocational school for the handicapped
Bildungsforschung	Educational research
Bildungsplanung	Educational planning
Bund	Federation
Bundesjugendplan	Federal youth plan
Bundesminister (or *Ministerium*) *fuer Bildung und Wissenschaft*	Federal Minister (or Ministry) of Education and Science
Bund-Laender-Kommission fuer Bildungsplanung	Federal-State Commission for Educational Planning
	D
Deutscher Bildungsrat	German Education Council organized in 1965 to develop long-range plans for the elementary and secondary levels
Diplom	Diploma
Diplom-Ingenieur	Engineer with diploma
Doktor	Doctorate (academic degree)
Doktor Habilitation (Dr. Habil.)	Second doctorate required of university professors
	E
Elementarstufe	Preschool level
Elternbeirat	Parents' council
Erwachsenenbildung	Adult education
	F
Facharbeiter	Skilled worker
Fachbereich (pl. *-bereiche*)	Academic department
Fachgebundene Hochschulreife	Level of education that qualifies for admission to higher education in specific subject areas
Fachhochschule	Specialized higher institution
Fachhochschulreife	Level of education that qualifies for admission to the specialized higher institution (*Fachhochschule*), obtained by completing the specialized secondary school or an equivalent program
Fachoberschule	Specialized secondary school
Fachschule	Technical school
Fachschulreife	Level of education that qualifies for admission to technical school
Forschung	Research
	G
Gesamthochschule	Comprehensive university
Gesamtschule	Comprehensive school, grades 5 through 10
Grundschule	Primary school, grades 1 through 4
Gymnasium	Academic secondary school, grades 5 through 13
	H
Hauptschule	Main school, grades 5 through 9 (before 1964, the upper elementary level); provides general education
Heimatkunde	Local geography and community study; literally, "knowledge of home"
Hochschule	Higher education institution
Hochschulrahmengesetz	General higher education law
Hochschulreife	Level of education that qualifies for admission to higher education
Hoehere Fachschule	Higher technical school. Before 1968, at the secondary level; after 1968, at the tertiary level as a special higher insitution (*Fachhochschule*)
	I
Ingenieur-Graduiert	Certificate received by a graduate of the engineering school before 1968
Ingenieurschule	Engineering school, a type of higher technical school before 1968
Institut (pl. *Institute*) *fuer Lehrerbildung*	Teacher-training institute (below higher education level) for training elementary school teachers; recently elevated to the higher education level as a college of education (*Pardagogische Hochschule*)
	K
Kanzler	Chancellor, university staff member responsible for all fiscal matters

Appendix 22: Glossary

Source: *The Educational System of the Federal Republic of Germany* (HEW Publication No. (OE) 76-19127), 1975, by P.S. Bodenman, (pp. 23-5), Washington, DC: U.S. Government Printing Office.

Kindergaertnerin (pl. *-gaertnerinnen*)	Kindergarten teacher (feminine)
Kindergaertnerinnenseminar	Institute for training kindergarten teachers (technical school level)
Kindergarten	Preschool education that is *not* part of the school system
Kinderheim	Children's home
Kinderhort	Children's care center (There is no sharp distinction between the *Kinderheim* and the *Kinderhort.*)
Kirchliche Hochschule	Protestant Church-related higher education institution
Klassenelternbeirat	Classroom level parents' council
Kolleg	Special university preparatory school for adults
Konvent	University parliament or assembly
Kunsthochschule	College of the arts

L

Land (pl. *Laender*)	State
Landkreis	Rural county
Landerziehungsheim	Country residential school, a private school generally including the primary and main school levels
Lehrabschlusspruefung	Final apprenticeship examination

M

Meisterschule	Technical school for master craftsmen
Medizinische Akademie or *Medizinische Hochschule*	Medical school (higher education level)
Mitbestimmung	Participation in decisionmaking, here with special reference to higher education administration

N

Numerus Clausus	Latin phrase referring to restriction on enrollments in numerous higher education fields because of lack of facilities

O

Oberschulamt (pl. *-aemter*)	Regional education office

P

Paedagogisches Institut (pl. *Paedagogische Institute*)	Same as *Institut fuer Lehrerbildung*
Paedagogische Hochschule	College of education (higher education level)
Planungsausschuss fuer den Hochschulbau	Planning Committee for University Construction
Philosophisch-Theologische Hochschule	Roman Catholic Church-related higher education institution
Physikum	Preliminary examination in medical school
Primarstufe	Primary school level

R

Realschulabschluss	Completion of the *Realschule*
Realschule	Middle school, grades 5 through 10. Provides general education at a more advanced level than that of the main school.
Regierungsbezirk	Regional administrative unit
Reifepruefung	Same as *Abiturpruefung*
Reifezeugnis	Same as *Abitur*
Rektor	Rector: head of a university; today, frequently renamed president

S

Sachkunde	Study of basic science and technology and general knowledge of the modern world (the revised elementary social studies course); literally, "knowledge of things"
Schulamt	City or county school office
Schule (pl. *Schulen*)	School
Schulelternbeirat	School-level parents' council
Schulkollegium	Regional school office
Schulrat	Superintendent of schools
Sekundarstufe I, II	Secondary level I, II
Sonderschule	School for the handicapped
Sonderschulkindergarten	Kindergarten for the handicapped
Sozialwissenschaftliches Gymnasium	Social science (academic) secondary school
Sporthochschule	College of sport
Stadt (pl. *Staedte*)	City
Staendige Konferenz der Kultusminister der Laender	Permanent Conference of Ministers of Education and Cultural Affairs of the States
Studienseminar	Professional training institute for secondary school teachers
Studienrat	Title of secondary school teacher with permanent certification

T

Technikerschule	Technical school that trains advanced industrial technicians
Technisches Gymnasium	Technical (academic) secondary school
Technische Hochschule	Technical university (institute of technology)
Technische Oberschule	Same as *Technisches Gymnasium*
Technische Universitaet	Same as *Technische Hochschule*
Tieraerztliche Hochschule	College of Veterinary Medicine

U

Universitaet (pl. *Universitaeten*)	University

V

Verband Deutscher Privatschulen ---------- Association of German Private Schools

Volkshochschule ---------- School of adult education or "people's college"

Volksschule ---------- Elementary school, including what is now called the *Grundschule* and the *Hauptschule*

Vorschule ---------- Preschool education that is part of the formal school system

W

Westdeutsche Rektorenkonferenz (WRK) ---------- West German Rector's Conference, an association of West German rectors and presidents of institutions of higher education

Wirtschaftsgymnasium ---------- Commercial (academic) secondary school

Wissenschaftliche Hochschule Universities, equivalent institutions, and colleges of education; literally, "scientific higher institution"

Wissenschaftsrat ---------- Science Council, organized in 1957 to develop long-range plans for higher education

Z

Zweiter Bildungsweg ---------- "Second way," designating special arrangements for acquiring the *Abitur*

U.S. Education Facts

- 20-30% of U.S. students enter school from poverty, improperly nourished, sick, neglected, with little intellectual stimulation – too far behind to catch up.
- 56% of our youth are non-college-goers and 20% more don't finish college [includes 15% of student who drop out of school and never graduate]; 72% graduate on time compared with 91% in Germany.
- It costs about $4,200 per year to send a child to school, $14,000 to keep a prisoner housed, and $4,300 to support a welfare family. Drop-outs make up 62% of all prison inmates and head more than half of all welfare families.
- During the 1980's the earnings of young high school drop-outs fell 42% and non-college-bound graduates by 28%. In 1990, overall American wages ranked 13th and are still falling.
- In 1988, 66% of all 12th graders worked in part-time service-sector jobs that were unrelated to what they learned in school.
- In 1986, American high school seniors ranked 9th in standardized physics tests, 11th in chemistry, and last in biology among 13 countries, including Hungary.
- 70% of corporate training funds are used to train the top 10% of professionals rather than the front-line workers.
- U.S. apprentices make up .16% of the workforce and are on average 29 years old.
- Pre-teachers' SAT scores are 20 to 40 points lower than other pre-professionals.

Sources: Based on information from "The Clinton Plan for Excellence in Education" in *Phi Delta Kappan*, 74(2), 1992, by W. Clinton, (p. 137); *Putting People First: How We Can All Change America*, 1992, by W. Clinton & A. Gore, (p. 5), New York: Times Books; "Apprenticeship: What Students Want: American Business and Labor Need to Change Their View of Apprenticeship" in *Vocational Education Journal*, 66(5), 1991, by S. Denby, (p. 24); "Apprentices' Sorcerer: B. Clinton's Worker Training Initiatives" in *The New Republic*, 207, 27 July 1992, by M. Kondracke, (p. 14); "Losing an Edge: Japan, Germany and Switzerland Begin to Outpace the U.S." in *Time*, 140, 20 July 1992, (p. 19); "Apprenticeships: Something Old, Something New, Something Needed" in *Industry Week*, 241(2), 20 January 1992, by J.F. McKenna, (p. 15); "Saving the Schools: How Business Can Help" in *Fortune*, 118(11), 7 November 1988, by N. Perry, (pp. 42, 44, 46, 50, 54).

Education Summit (1989) - America 2000 Education Goals

1) All children will start school ready to learn.
2) The high school graduation rate will increase to at least 90%.
3) Each student will leave 4th, 8th and 12th grades competent in at least English, math, science, history, and geography.
4) Students will be #1 world-wide in math and science.
5) Every adult will be literate and have the skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.
6) All schools will be free from drugs and violence.

Source: From America 2000: An Education Strategy (DOE Report 296-149/40545), 1975, (p. 19), Washington, DC: U.S. Government Printing Office.

Appendix 23: U.S. Educational Facts and America 2000 Educational Goals
Note: Under President Clinton's administration the goals are referred to as Goals 2000: Educate America.

WORKPLACE KNOW-HOW

The know-how identified by SCANS is made up of five competencies and a three-part foundation of skills and personal qualities that are needed for solid job performance. These are:

WORKPLACE COMPETENCIES:— Effective workers can productively use:

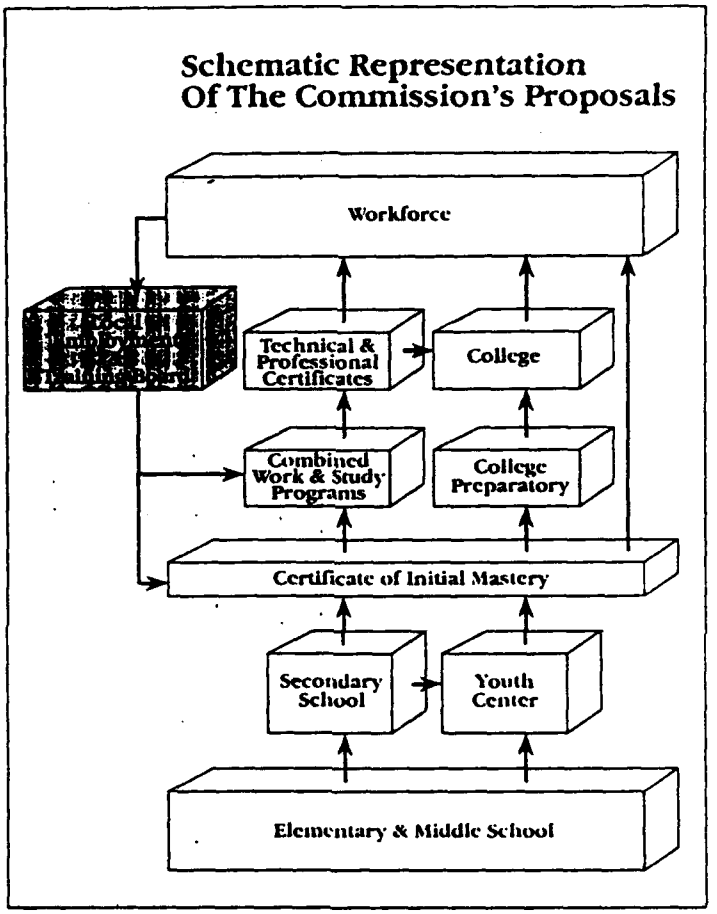
- **Resources**—They know how to allocate time, money, materials, space, and staff.
- **Interpersonal skills**—They can work on teams, teach others, serve customers, lead, negotiate, and work well with people from culturally diverse backgrounds.
- **Information**—They can acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information.
- **Systems**—They understand social, organizational, and technological systems; they can monitor and correct performance; and they can design or improve systems.
- **Technology**—They can select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment.

FOUNDATION SKILLS:— Competent workers in the high-performance workplace need:

- **Basic Skills**—reading, writing, arithmetic and mathematics, speaking, and listening.
- **Thinking Skills**—the ability to learn, to reason, to think creatively, to make decisions, and to solve problems.
- **Personal Qualities**—individual responsibility, self-esteem and self-management, sociability, and integrity.

Appendix 24: SCANS Competencies

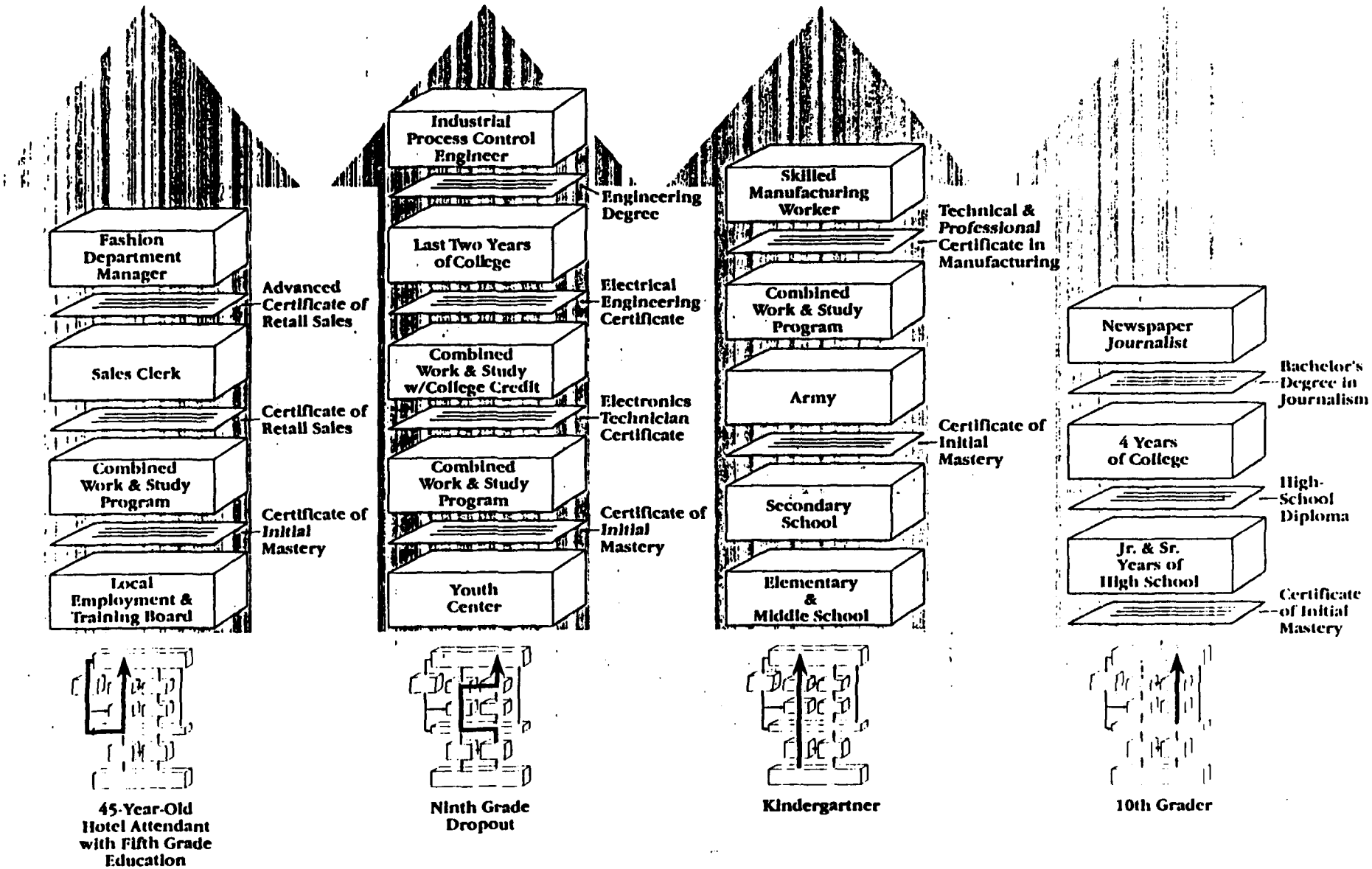
Source: Learning a Living: A Blueprint for High Performance: A SCANS Report for America 2000 (DOL Report 322-30340303). (1992, April). by The Secretary's Commission on Achieving Necessary Skills. (p. 6). Washington, DC: U.S. Government Printing Office.



Appendix 25: America's Choice [illegible]n

Source: America's Choice: High Skills or Low Wages, 1990, by the Na[illegible]ter on Education and the Economy's Commission on the Skills of the American Workforce, (pp. 87-8). NY: National Center on Education and the Economy.

Progressing Through The New Structure: Four Examples



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